cincoze

User's Manual

Fanless Computing Solution

Compact Size Fanless Computer

DC-1000

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Preface

Revision

Revision	Description	Date
1.0	Manual Released	2014/09/29
1.1	New Optional Accessories Released	2015/01/13

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Disclaimer

This manual is intended to be used as a practical and informative guide only and is subject to change without notice. It does not represent a commitment on the part of Cincoze. This product might include unintentional technical or typographical errors. Changes are periodically made to the information herein to correct such errors, and these changes are incorporated into new editions of the publication.

Declaration of Conformity

FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

CE

The product(s) described in this manual complies with all application European Union (CE) directives if it has a CE marking. For computer systems to remain CE compliant, only CE-compliant parts may be used. Maintaining CE compliance also requires proper cable and cabling techniques.

Product Warranty Statement

Warranty

Cincoze products are warranted by Cincoze Co., Ltd. to be free from defect in materials and workmanship for 2 years from the date of purchase by the original purchaser.
During the warranty period, we shall, at our option, either repair or replace any product that proves to be defective under normal operation.
Defects, malfunctions, or failures of the warranted product caused by damage resulting from natural disasters (such as by lightening, flood, earthquake, etc.), environmental and atmospheric disturbances, other external forces such as power line disturbances, plugging the board in under power, or incorrect cabling, and damage caused by misuse, abuse, and unauthorized alteration or repair, and the product in question is either software, or an expendable item (such as a fuse, battery, etc.), are not warranted.

RMA

Before sending your product in, you will need to fill in Cincoze RMA Request form and obtain a RMA number from us. Our staff is available at any time to provide you with the most friendly and immediate service.

■ RMA Instruction

- Customers must fill in Cincoze Return Merchandise Authorization (RMA) Request Form and obtain a RMA number prior to returning a defective product to Cincoze for service.
- Customers must collect all the information about the problems encountered and note anything abnormal and describe the problems on the "Cincoze Service Form" for the RMA number apply process.
- Charges may be incurred for certain repairs. Cincoze will charge for repairs to products whose warranty period has expired. Cincoze will also charge for repairs to products if the damage resulted from acts of God, environmental or atmospheric disturbances, or other external forces through misuse, abuse, or unauthorized alteration or repair. If charges will be incurred for a repair, Cincoze lists all charges, and will wait for customer's approval before performing the repair.
- Customers agree to insure the product or assume the risk of loss or damage during transit, to prepay shipping charges, and to use the original shipping container or equivalent.
- Customers can be seed back the faulty products with or without accessories (manuals, cable, etc.) and any components from the card. If the components were suspected as part of the problems, please not clearly which components are included. Otherwise, Cincoze is not responsible for the devices/parts.
- Repaired items will be shipped along with a "Repair Report" detailing the findings and actions taken.

Limitation of Liability

Cincoze' liability arising out of the manufacture, sale, or supplying of the product and its use, whether based on warranty, contract, negligence, product liability, or otherwise, shall not exceed the original selling price of the product. The remedies provided herein are the customer's sole and exclusive remedies. In no event shall Cincoze be liable for direct, indirect, special or consequential damages whether based on contract of any other legal theory.

Technical Support and Assistance

1. Visit the Cincoze website at www.cincoze.com/support.php where you can find the latest information about the product.
2. Contact your distributor or our technical support team or sales representative for technical support if you need additional assistance. Please have following information ready before you call:
   - Product name and serial number
   - Description of your peripheral attachments
   - Description of your software (operating system, version, application software, etc.)
   - A complete description of the problem
   - The exact wording of any error messages

Conventions Used in this Manual

WARNING This indication alerts operators to an operation that, if not strictly observed, may result in severe injury.

CAUTION This indication alerts operators to an operation that, if not strictly observed, may result in safety hazards to personnel or damage to equipment.

NOTE This indication provides additional information to complete a task easily.

Safety Precautions

Before installing and using this device, please note the following precautions:

1. Read these safety instructions carefully.
2. Keep this User's Manual for future reference.
3. Disconnected this equipment from any AC outlet before cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
8. Use a power cord that has been approved for use with the product and that it matches the voltage and current marked on the product's electrical range label. The voltage and current rating of the cord must be greater than the voltage and current rating marked on the product.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.

    If one of the following situations arises, get the equipment checked by service personnel:

    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment does not work well, or you cannot get it to work according to the user's manual.
    - The equipment has been dropped and damaged.
    - The equipment has obvious signs of breakage.

14. CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

Package Contents

Before installation, please ensure all the items listed in the following table are included in the package.

Item	Description	Q'ty
1	DC-1000 Embedded System	1
2	Utility DVD Driver	1
3	Quick Installation Guide	1
4	DIO Terminal Block Connector (Female)	1
5	Power Terminal Block Connector (Female)	1
6	DVI-I To VGA Adapter	1
7	Screw Pack	1
8	Wall Mount Kit	1

Note: *Notify your sales representative if any of the above items are missing or damaged.*

Ordering Information

Model No.	Product Description
DC-1000	Intel® Atom™ D525 Compact Size Fanless Computer and 2x Mini-PCIe Expansion

Optional Accessories

Model Name	Description
GSM60A12-CIN	Adapter AC/DC 12V 5A 60W with 3pin Terminal Block Plug 5.0mm Pitch, GSM60A12-P1J
SL2-SL3	US 2 heads power cord, US B type to IEC C13, SVT 18AWG/3C Black 1.8M SL-2+SL-3
SL6-SL3	EU 2 heads power cord, EU G type to IEC C13,H05VV-F 0.75mm2/3G Black 1.8M SL-6+SL-3
QP026-SL3	UK 2 heads power cord, UK I type to IEC C13, H05VV-F 0.75mm2/3G Black 1.8M QP026+SL-3
VESA-DC	DC series VESA Mount Kit
SIDE-DC	DC series SIDE Mount Kit
DIN RAIL	Diamond series DIN-RAIL Mount Kit
59381560000E	MINI-DIN(M) (PS/2 KB+MS) TO MINI-DIN(F) (PS/2 KB)+MINI-DIN(F) (PS/2 MS) L:10CM, 59381560000E
N0307-140507-01	DVI-I(M) TO DVI-D(F) + VGA(F) Cable, L=200mm, N0307-140507-01

Chapter 1

Product Introduction

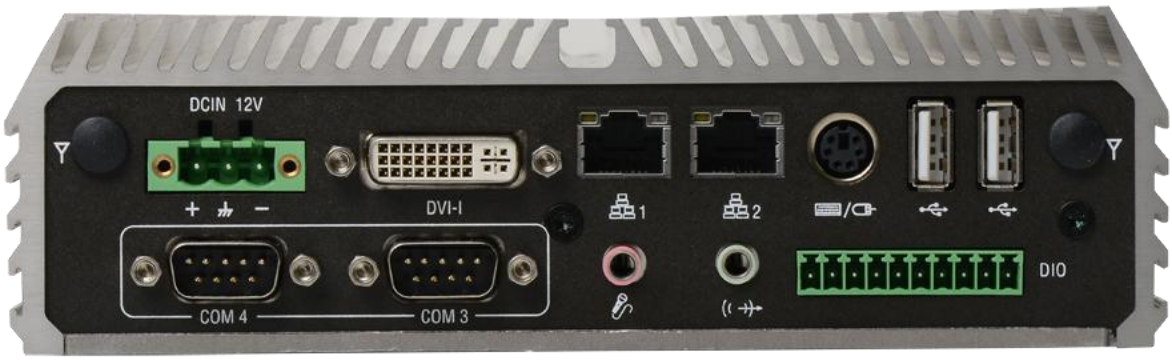
1.1 Overview

DC-1000 is a compact size (185mm (W) x 131mm (D) x 54mm (H)) system designed with onboard Intel® Atom™ D525 processor, 1.8GHz and Intel® ICH8M chipset, rich I/O, and unique expansion capability.

With features including completely cable-less designed, special heat dissipation, anti-vibration, and industrial components selection, DC-1000 is a ruggedized system that can operate in harsh environment.

Building in voltage protection, reliable DC power input, and reverse power protection makes DC-1000 a safety system for industrial application.

Front



Rear

1.1.1 Key Features

- Onboard Intel® Atom™ D525 processor, 1.8GHz
- 1x DDR3 SO-DIMM max. up to 2GB
- Dual Independent Display from 1x DVI-I to 1x VGA / 1x DVI-D (w/ optional split cable)
- 2x Intel® GbE port, support Wake-on-Lan and PXE
- 4x USB 2.0
- 4x RS232 port with 5V/12V power
- 4x Isolated DI, 4x Isolated DO
- 1x 2.5" SATA SSD/HDD bay, 1x mSATA shared by Mini-PCIe socket, 1x CF card and 1x SIM card socket
- 12V DC power input, support AT/ATX Mode
- 2x Mini-PCIe Slots for Wi-Fi, GSM, or I/O Expansion
- Universal I/O bracket for Mini-PCIe Expansion

1.2 Hardware Specification

Processor System
- Onboard Intel® Atom™ Processor D525 Dual Core, 1.8 GHz with AMI 16Mbit SPI BIOS
- Intel® ICH8M chipsets

Memory
- 1x 204-Pin SO-DIMM DDR3-800MHz (un-buffered and non-ECC), max. up to 2GB

Display
Dual Display
- 1x DVI-D and 1x VGA (w/ Optional Split Cable)

Expansion
- 2x Full-size Mini PCIe Sockets for Wi-Fi / GSM / Expansion Module
- 1x Universal I/O Bracket

Ethernet
- 2 x Intel® 82583V GbE LAN Port, Support Wake-on-LAN and PXE

Audio
- CODEC: Realtek ALC888S
- 1x Mic-in and 1x Speak-out

Watchdog Timer
- Software Programmable Supports 1~255 sec. System Reset

Storage
- 1x 2.5" SATA SSD/HDD Bay
- 1x Internal mSATA Slot (Shared by Mini-PCIe socket)
- 1x External CompactFlash Socket
- 1x External SIM Card Socket

I/O Ports
- 4x USB 2.0 Port
- 1x PS/2 Port
- 4 x DB9 for COM1~4, Support RS232
- 2x Antenna Hole
- 1x Power Switch
- 1x AT/ATX Switch

Digital Input & Output
- 4 x Digital Input (Source Type)
  - Input Voltage (Dry Contact):
    Logic 0: Close to GND
    Logic 1: Open
  - Input Voltage:
    Logic 0: 3V max.
    Logic 1: 5V min. (DI to COM-)
- 4 x Digital Output
  - Supply Voltage: 5~30VDC
  - Sink Current: 200 mA Max. Per Channel

Power
- Support AT, ATX Mode
- 1x 3-pin Terminal Block Connector with 12V DC Power Input
- 1x Optional AC/DC 12V/5A, 60W Power Adapter

Environment
- Operating Temperature: Ambient with Air Flow: -20˚C to 60˚C (with Industrial Grade Peripherals)
- Storage Temperature: -20˚C to 80˚C
- Relative humidity: 10%~95% (non-condensing)

Physical
- Dimension (W x D x H): 185 x 131 x 54 mm
- Weight: 1.58kg
- Construction: Extruded Aluminum with Heavy Duty Metal
- Mounting: Wall, Optional Side/VESA/DIN-Rail Mounting

Operating System
- Windows® Embedded Standard 7
- Windows® 7
- Windows® XP Professional
- Windows® XP Embedded

Certifications
- CE
- FCC Class A

1.3 System I/O

1.3.1 Front Panel

ATX power on/off switch
Press to power-on or power-off the system

Power LED
Indicates the power status of the system

HDD LED
Indicates the status of the hard drive

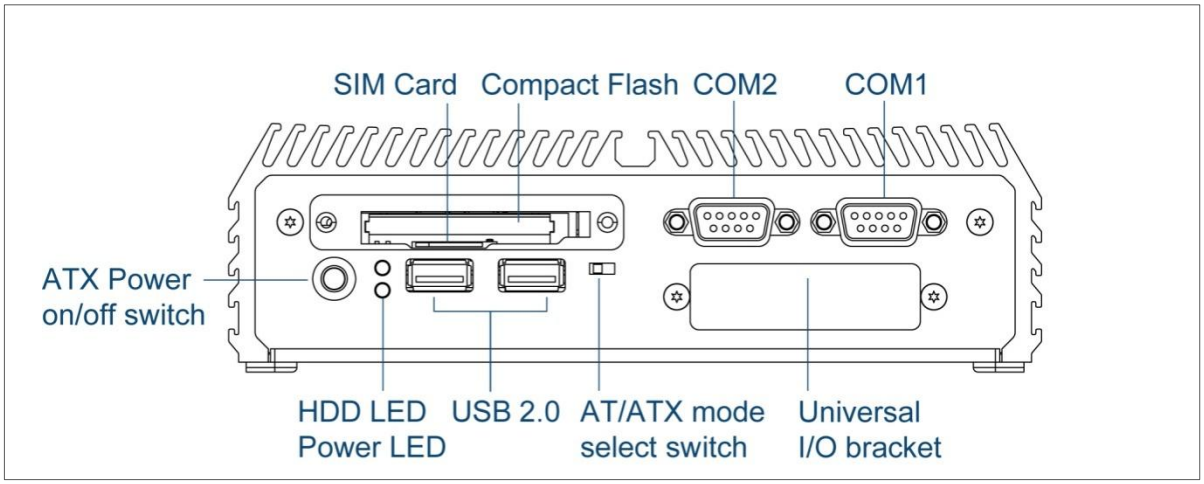
USB 2.0 port
Used to connect USB 2.0/1.1 device

AT/ATX mode select switch
Used to select AT or ATX power mode

CompactFlash and SIM card
Used to insert a CompactFlash card and SIM card

COM port
COM 1 and COM 2 support RS232 serial device

Universal I/O bracket
Used to customized I/O output



1.3.2 Rear Panel

DC IN
Used to plug a DC power input with terminal block

DVI-I port
Used to connect a DVI monitor or connect optional split cable for dual display mode

LAN port
Used to connect the system to a local area network

PS/2 port
Used to connect the PS/2 device

USB 2.0 port
Used to connect USB 2.0/1.1 devices

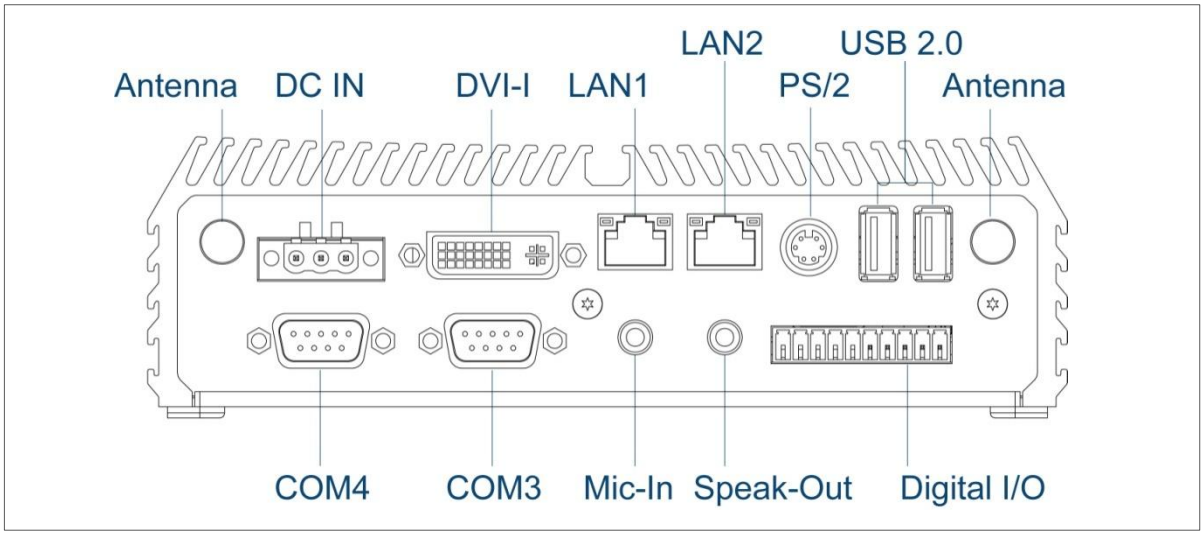
Antenna hole
Used to connect an antenna for optional Mini-PCIe WiFi module

COM ports
COM 3 and COM 4 support RS232 serial device

Mic-in
Used to connect a microphone

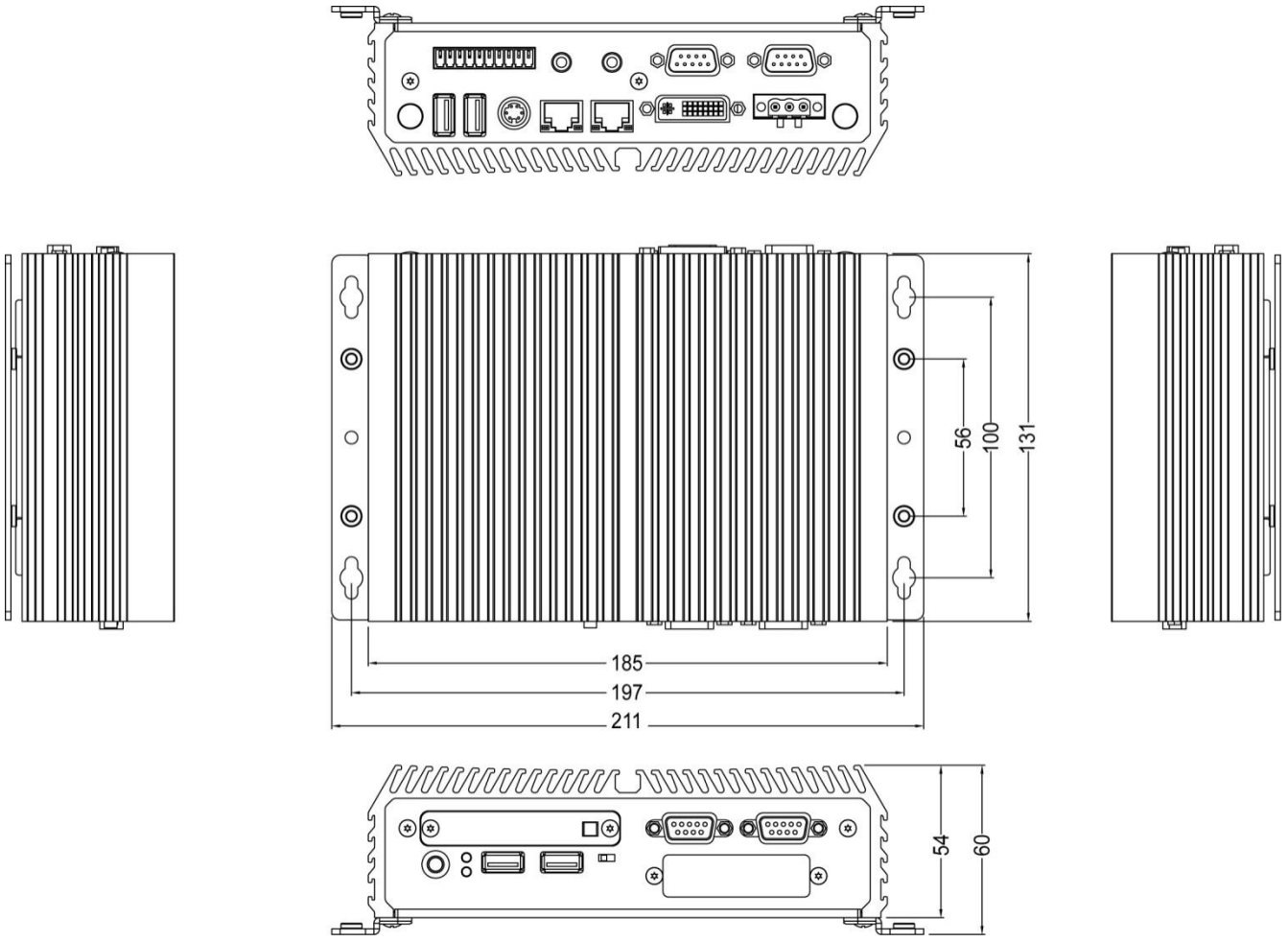
Speaker-out
Used to connect a speaker

Digital I/O Terminal Block
The Digital I/O terminal block supports 4 digital input and 4 digital output



1.4 Mechanical Dimensions

Unit: mm



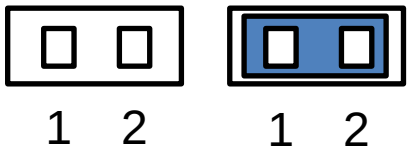
Chapter 2

Jumpers and Connectors

2.1 Jumpers Settings

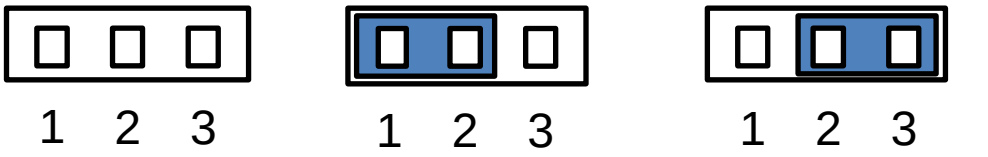
When setting the jumpers, ensure that the jumper caps are placed on the correct pins. When the jumper cap is placed on both pins, the jumper is **short**. If you remove the jumper cap, or place the jumper cap on just one pin, the jumper is **open**. Refer to below for examples of the 2-pin and 3-pin jumpers when they are short (on) and open (off).

Two-Pin Jumpers



Open Short

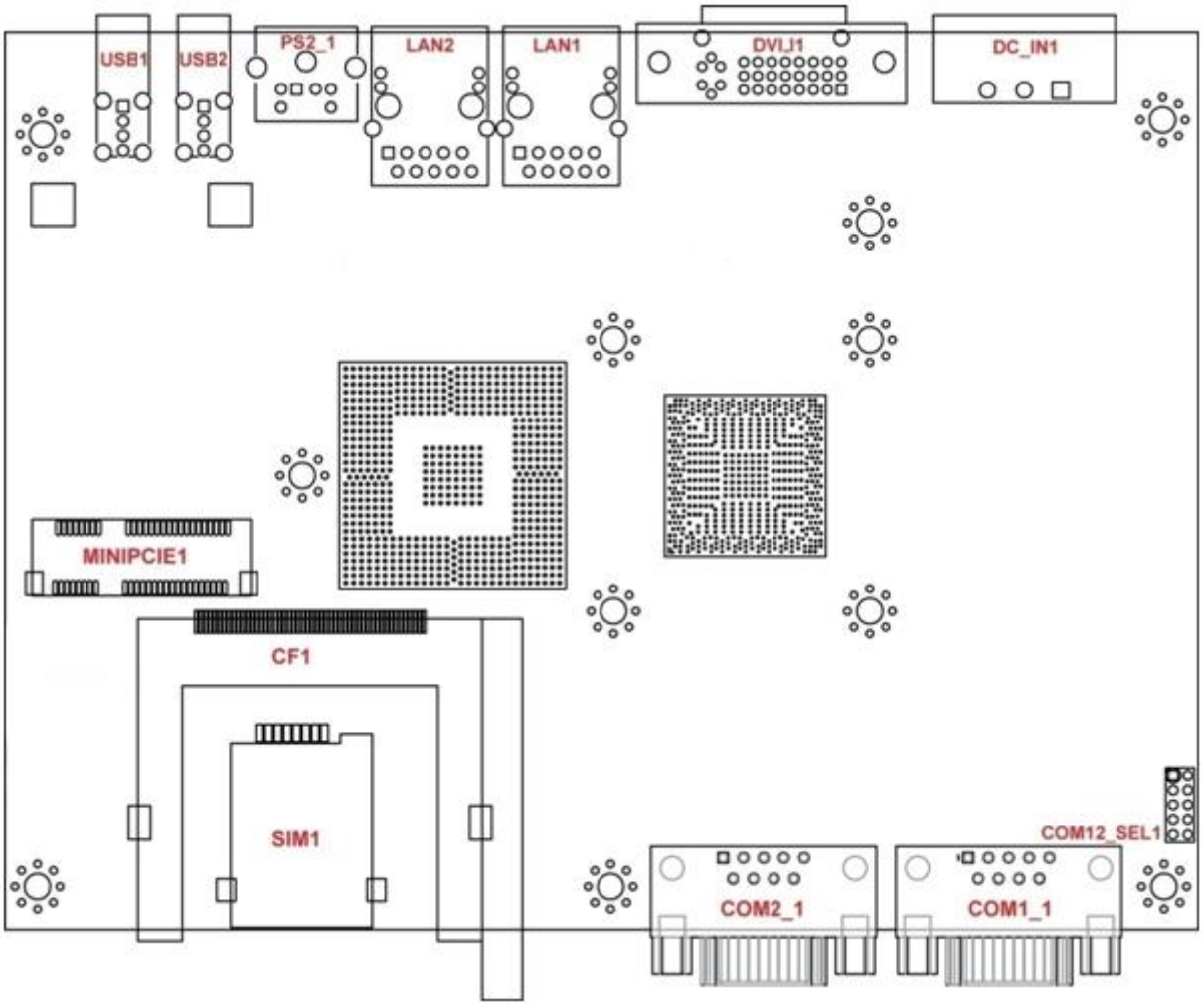
Three-Pin Jumpers



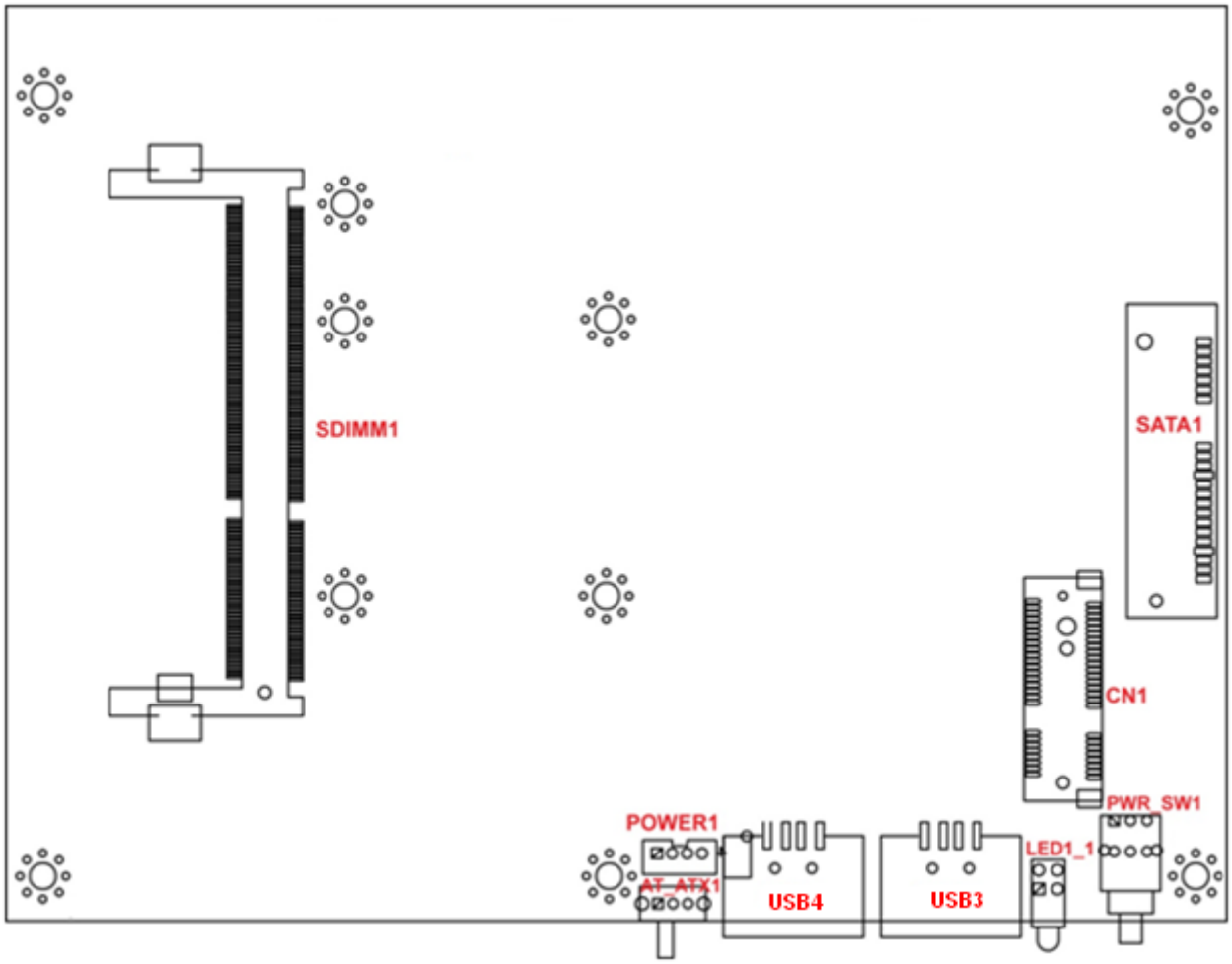
All pins are open | Pins 1 and 2 are short | Pins 2 and 3 are short

2.2 Locations of the Jumpers and Connectors

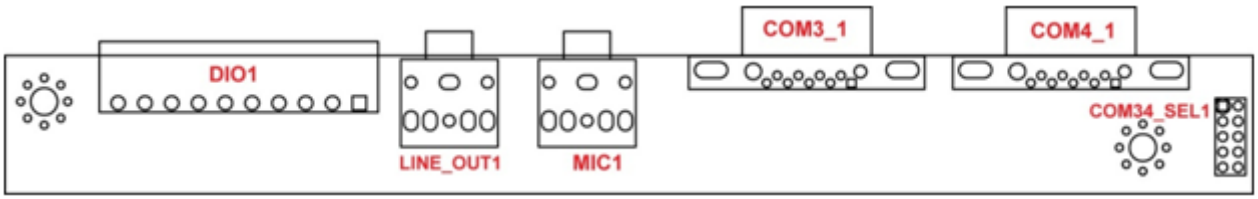
2.2.1 Top View



2.2.2 Bottom View



2.2.3 Daughter board Top View



2.3 List of Jumpers and Connectors

List of Jumpers

Jumper Location	Definition
COM12_SEL1	COM1~COM2 +5 / +12V / RI Select
COM34_SEL1	COM3~COM4 +5 / +12V / RI Select

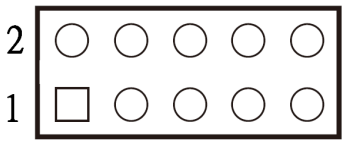
List of Connectors

Connector Location	Definition
AT_ATX1	AT / ATX Power Mode Switch
CF1	CompactFlash Connector
CLR_CMOS1	Clear BIOS Switch
CN1	Mini PCI-Express / mSATA Socket
COM1_1, COM2_1, COM3_1, COM4_1	RS232 Connector
DC_IN1	3-pin DC 12V Power Connector
DIO1	4DI / 4DO Connector
DVI_I1	DVI-I Connector
LAN1、LAN2	RJ45 with LED Connector
LED1	Power / HDD Access LED Status
LINE_OUT1	Speaker-out Jack
MIC1	Mic-in Jack
MINIPCIE1	Mini PCI-Express Socket
POWER1	Power Connector
PS2_1	PS/2 Keyboard / Mouse Connector
PWR_SW1	Power Switch
SATA1	SATA Connector
SIM1	SIM Card Socket
USB1, USB2, USB3, USB4	USB 2.0 Connector

2.4 Jumpers Definitions

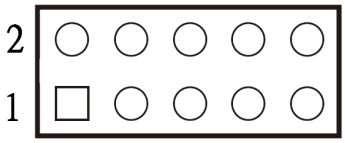
COM12_SEL1 : COM1 / COM2 RI Pin Header
Connector type：2X5 10-pin Header, 2.0mm pitch

COM1		COM2	
Pin	**RI1 Definition**	**Pin**	**RI2 Definition**
1-3 On	+5V	2-4 On	+5V
3-5 On	+12V	4-6 On	+12V
7-9 On (Default)	RI1	8-10 On (Default)	RI2



COM34_SEL1 : COM3 / COM4 RI Pin Header
Connector type：2X5 10-pin Header, 2.0mm pitch

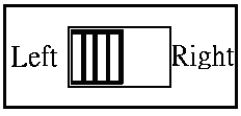
COM3		COM4	
Pin	**RI3 Definition**	**Pin**	**RI4 Definition**
1-3 On	+5V	2-4 On	+5V
3-5 On	+12V	4-6 On	+12V
7-9 On (Default)	RI3	8-10 On (Default)	RI4



2.5 Connectors Definitions

AT_ATX1：AT / ATX Power Mode Switch

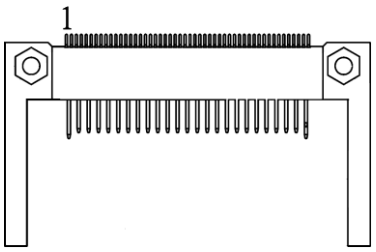
Switch	Definition
Left	ATX Power Mode（Default）
Right	AT Power Mode



CF1：CompactFlash Connector

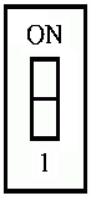
Connector type：CompactFlash Type 2

Pin	Definition	Pin	Definition	Pin	Definition
1	GND	18	SA2	35	IOW #
2	Data 3	19	SA1	36	VCC
3	Data 4	20	SA0	37	Interrupt
4	Data 5	21	Data 0	38	VCC
5	Data 6	22	Data 1	39	N.C
6	Data 7	23	Data 2	40	GND
7	HDC CS0 #	24	N.C	41	Reset #
8	GND	25	N.C	42	IOCHRDY
9	GND	26	N.C	43	N.C
10	GND	27	Data 11	44	N.C
11	GND	28	Data 12	45	HDD Active #
12	GND	29	Data 13	46	N.C
13	VCC	30	Data 14	47	Data 8
14	GND	31	Data 15	48	Data 9
15	GND	32	HDC CSI #	49	Data 10
16	GND	33	GND	50	GND
17	GND	34	IOR #		



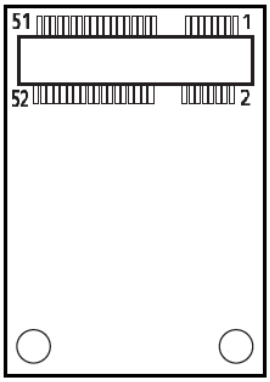
CLR_CMOS1：Clear BIOS Switch

Switch	Definition
ON	Clear BIOS
OFF	Normal Status (Default)



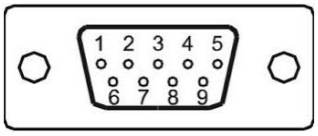
CN1：Mini PCI-Express / mSATA Socket

Pin	Definition	Pin	Definition
1	WAKE#	27	GND
2	+3.3V	28	+1.5V
3	NC	29	GND
4	GND	30	SMB_CLK
5	NC	31	MINIPCIE_TXN3 / SATA_TXN1
6	+1.5V	32	SMB_DATA
7	CLKREQ#	33	MINIPCIE_TXP3 / SATA_TXP1
8	NC	34	GND
9	GND	35	GND
10	NC	36	USB_6N
11	MINIPCIE_CLKN3	37	GND
12	NC	38	USB_6P
13	MINIPCIE_CLKP3	39	+3.3V
14	NC	40	GND
15	GND	41	+3.3V
16	NC	42	NC
17	NC	43	GND
18	GND	44	NC
19	NC	45	NC
20	+3.3V	46	NC
21	GND	47	NC
22	MINIPCIE RST#	48	+1.5V
23	MINIPCIE_RXN3 / SATA_RXP1	49	NG
24	+3.3V	50	GND
25	MINIPCIE_RXP3 / SATA_RXN1	51	NC
26	GND	52	+3.3V



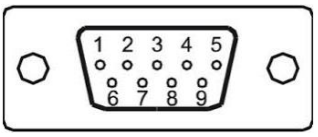
COM1_1：RS232 / RS422 / RS485 Connector
Connector Type：9-pin D-Sub

Pin	RS232 Definition	RS422 / 485 Full Duplex Definition	RS485 Half Duplex Definition
1	DCD1	TX1-	DATA1-
2	RxD1	TX1+	DATA1+
3	TxD1	RX1+	
4	DTR1	RX1-	
5	GND1		
6	DSR1		
7	RTS1		
8	CTS1		
9	RI1		



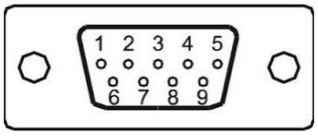
COM2_1：RS232 / RS422 / RS485 Connector
Connector Type：9-pin D-Sub

Pin	RS232 Definition	RS422 / 485 Full Duplex Definition	RS485 Half Duplex Definition
1	DCD2	TX2-	DATA2-
2	RxD2	TX2+	DATA2+
3	TxD2	RX2+	
4	DTR2	RX2-	
5	GND2		
6	DSR2		
7	RTS2		
8	CTS2		
9	RI2		



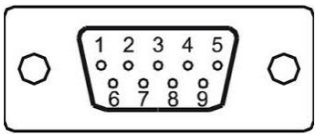
COM3_1：RS232 / RS422 / RS485 Connector
Connector Type：9-pin D-Sub

Pin	RS232 Definition	RS422 / 485 Full Duplex Definition	RS485 Half Duplex Definition
1	DCD3	TX3-	DATA3-
2	RxD3	TX3+	DATA3+
3	TxD3	RX3+	
4	DTR3	RX3-	
5	GND3		
6	DSR3		
7	RTS3		
8	CTS3		
9	RI3		



COM4_1：RS232 / RS422 / RS485 Connector
Connector Type：9-pin D-Sub

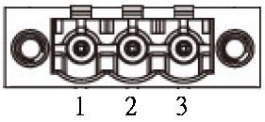
Pin	RS232 Definition	RS422 / 485 Full Duplex Definition	RS485 Half Duplex Definition
1	DCD4	TX4-	DATA4-
2	RxD4	TX4+	DATA4+
3	TxD4	RX4+	
4	DTR4	RX4-	
5	GND4		
6	DSR4		
7	RTS4		
8	CTS4		
9	RI4		



DC_IN1：DC Power Input Connector (+12V)

Connector Type：Phoenix 1X3 3-pin, 5.0mm pitch

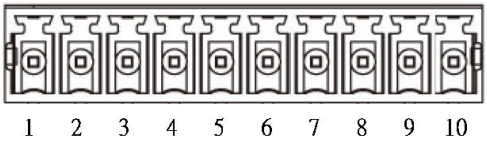
Pin	Definition
1	+12VIN
2	Chassis GND
3	GND

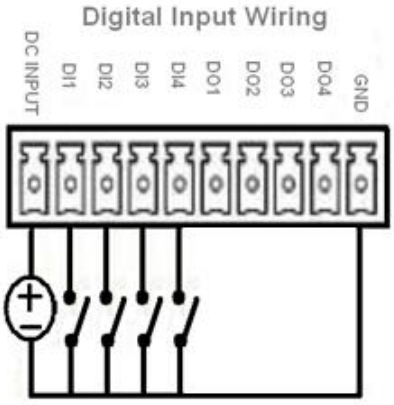


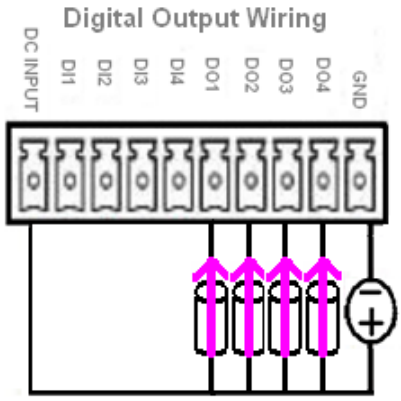
DIO1：Digital Input / Output Connector

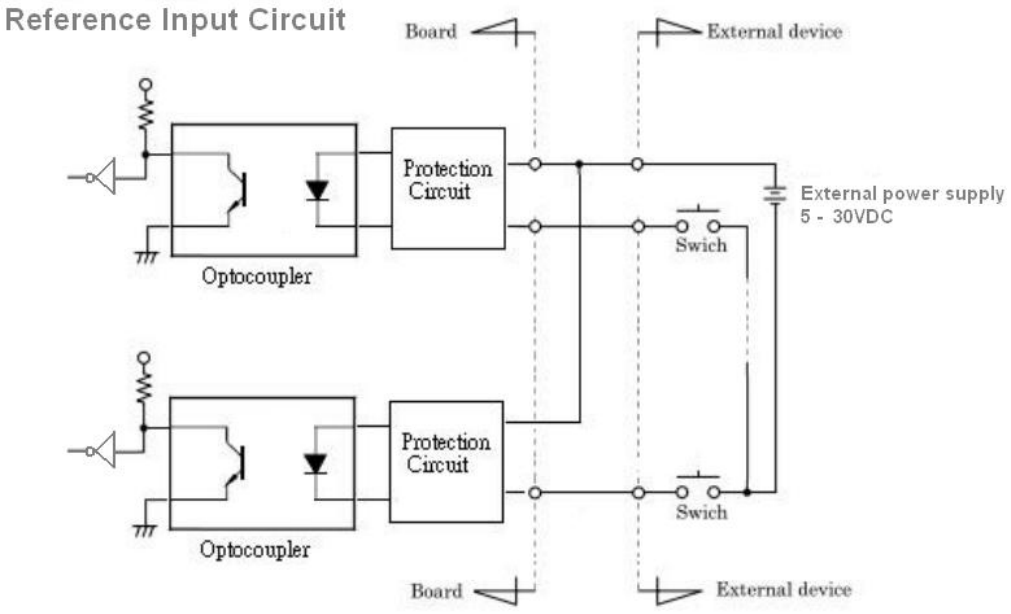
Connector Type：Phoenix 1X10 10-pin, 3.5mm pitch

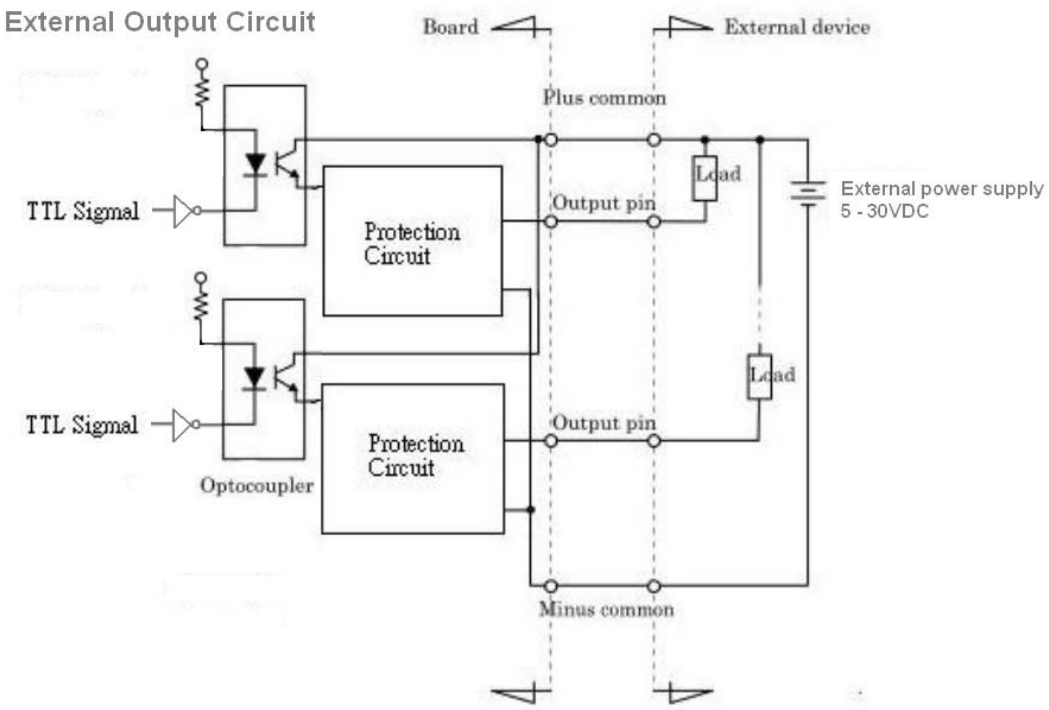
Pin	Definition	Pin	Definition
1	DC INPUT	6	DO1
2	I1	7	DO2
3	DI2	8	DO3
4	DI3	9	DO4
5	DI4	10	GND





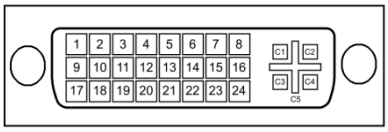






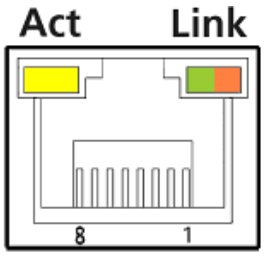
DVI_I1：DVI-I Connector

Pin	Definition	Pin	Definition
1	DVI_TX2-	16	DVI Hot Plug Detect
2	DVI_TX2+	17	DVI_TX0-
3	GND	18	DVI_TX0+
4	NC	19	GND
5	NC	20	NC
6	DDC_CLOCK	21	NC
7	DDC_DATA	22	GND
8	VGA VSYNC	23	DVI_TXCLK+
9	DVI_TX1-	24	DVI_TXCLK-
10	DVI_TX1+	C1	VGA_RED
11	GND	C2	VGA_GREEN
12	NC	C3	VGA_BLUE
13	NC	C4	VGA_HSYNC
14	+5V	C5	GND
15	GND		



LAN1：RJ45 with LED Connector

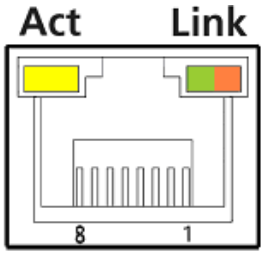
Pin	Definition	Pin	Definition
1	LAN_MD0P	5	LAN_MD2N
2	LAN_MDIN	6	LAN_MD1N
3	LAN_MD1P	7	LAN_MD3P
4	LAN_MD2P	8	LAN_MD3N



Act LED Status	Definition	Link LED Status	Definition
Blinking Yellow	Data Activity	Steady Green	1Gbps Network Link
Off	No Activity	Steady Orange	100Mbps Network Link
		Off	10Mbps Network Link

LAN2：RJ45 with LED Connector

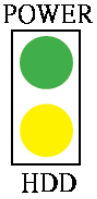
Pin	Definition	Pin	Definition
1	LAN_MDI0P	5	LAN_MDI2N
2	LAN_MDI0N	6	LAN_MDI1N
3	LAN_MDI1P	7	LAN_MDI3P
4	LAN_MDI2P	8	LAN_MDI3N



Act LED Status	Definition	Link LED Status	Definition
Blinking Yellow	Data Activity	Steady Green	1Gbps Network Link
Off	No Activity	Steady Orange	100Mbps Network Link
		Off	10Mbps Network Link

LED1：Power / HDD Access LED Status

Pin	Definition
1	HDD LED+
2	HDD LED-
3	POWER LED+
4	POWER LED-



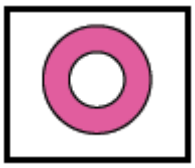
LED Status	LED Color
HDD	Yellow
POWER	Green

LINE_OUT1：Speaker-out Jack (Green)
Connector Type：5-pin Phone Jack

Pin	Definition
1	GND
2	OUT_R
3	NC
4	GND
5	OUT_L

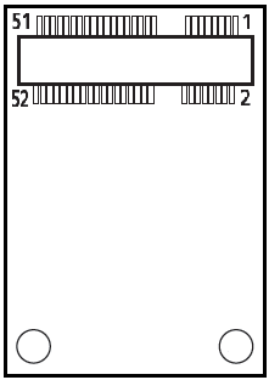
MIC1：Microphone Jack (Green)
Connector Type：5-pin Phone Jack

Pin	Definition
1	GND
2	MIC_R
3	NC
4	GND
5	MIC_L



MINIPCIE1：Mini PCI-Express Socket

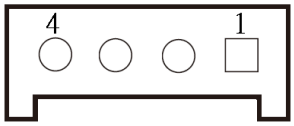
Pin	Definition	Pin	Definition	Pin	Definition
1	WAKE#	19	NC	37	GND
2	+3.3V	20	+3.3V	38	USB_7P
3	NC	21	GND	39	+3.3V
4	GND	22	MINIPCIE RST#	40	GND
5	NC	23	MINIPCIE_RXN4	41	+3.3V
6	+1.5V	24	+3.3V	42	NC
7	CLKREQ#	25	MINIPCIE_RXP4	43	GND
8	NC	26	GND	44	NC
9	GND	27	GND	45	NC
10	NC	28	+1.5V	46	NC
11	MINIPCIE_CLKN4	29	GND	47	NC
12	NC	30	SMB_CLK	48	+1.5V
13	MINIPCIE_CLKP4	31	MINIPCIE_TXN4	49	NC
14	NC	32	SMB_DATA	50	GND
15	GND	33	MINIPCIE_TXP4	51	NC
16	NC	34	GND	52	+3.3V
17	NC	35	GND		
18	GND	36	USB_7N		



POWER1：Power Connector

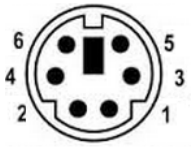
Connector Type：1X4-pin Wafer, 2.0mm pitch

Pin	Definition
1	+5V
2	GND
3	GND
4	+12V



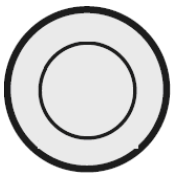
PS2_1：Keyboard / Mouse Connector

Pin	Definition
1	KBDAT
2	MSDAT
3	GND
4	+5V
5	KBCLK
6	MSCLK



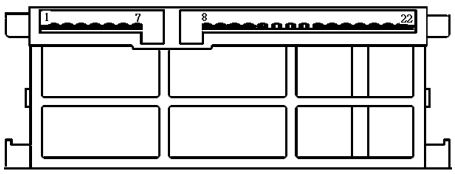
PWR_SW1：Power Switch

Pin	Definition
1	NC
2	Power Button
3	NC
4	GND
5	NC
6	GND



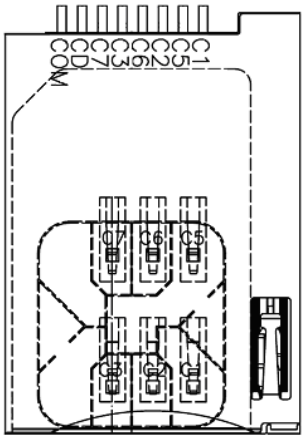
SATA1：SATA Connector

Pin	Definition	Pin	Definition
1	GND	12	GND
2	TX+	13	GND
3	TX-	14	+5V
4	GND	15	+5V
5	RX-	16	+5V
6	RX+	17	GND
7	GND	18	GND
8	+3.3V	19	GND
9	+3.3V	20	+12V
10	+3.3V	21	+12V
11	GND	22	+12V



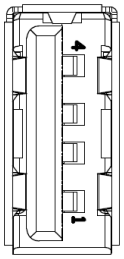
SIM1：SIM Card Socket

Pin	Definition
C1	UIM_PWR
C2	UIM_RESET
C3	UIM_CLK
C5	GND
C6	UIM_VPP
C7	UIM_DATA
CD	NC
COM	GND



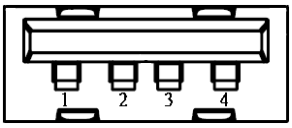
USB1、USB2：USB2.0 Connector, Type A

USB1		USB2	
Pin	Definition	Pin	Definition
1	+5V	1	+5V
2	USB_DATA3-	2	USB_DATA2-
3	USB_DATA3+	3	USB_DATA2+
4	GND	4	GND



USB3、USB4：USB2.0 Connector, Type A

USB3		USB4	
Pin	Definition	Pin	Definition
1	+5V	1	+5V
2	USB_DATA1-	2	USB_DATA0-
3	USB_DATA1+	3	USB_DATA0+
4	GND	4	GND



Chapter 3

System Setup

3.1 Removing the Chassis Bottom Cover

WARNING

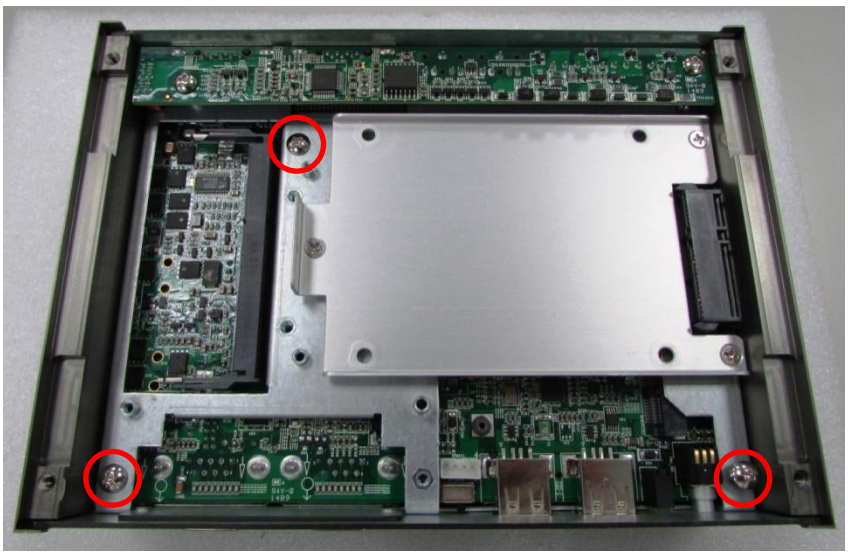
In order to prevent electric shock or system damage, before removing the chassis cover, must turn off power and disconnect the unit from power source.

1. Turn over the unit to have the bottom side face up, loosen the 4 screws of bottom cover and place them aside.

2. Remove the cover from the chassis.

3.2 Removing the Chassis

1. Loosen the 3 screws as mark on photo and place them aside.

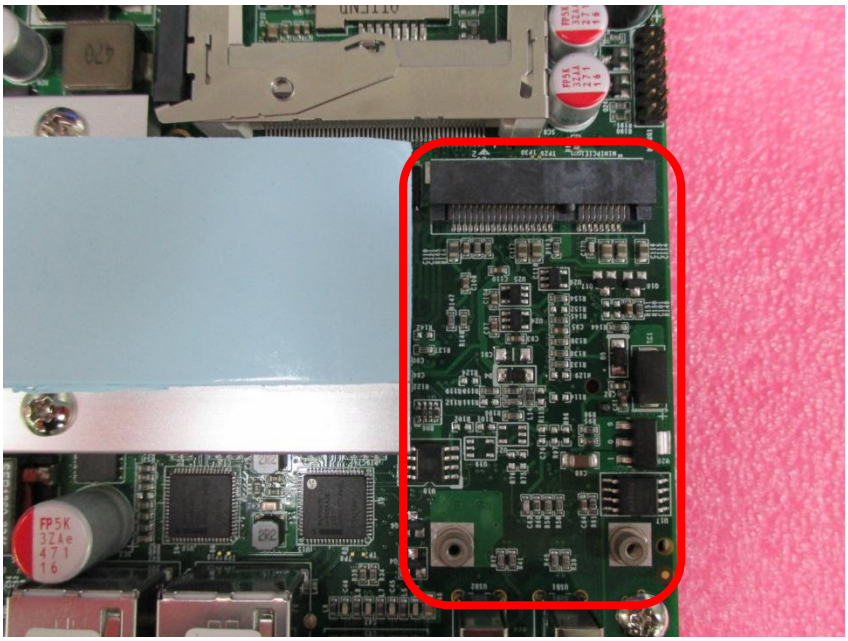


2. Hold front and rear panel and lift up the body of unit vertically.

3. Turn over the body of the unit and place it gently.

3.3 Installing a Half Size Mini PCIe Card on Top Side

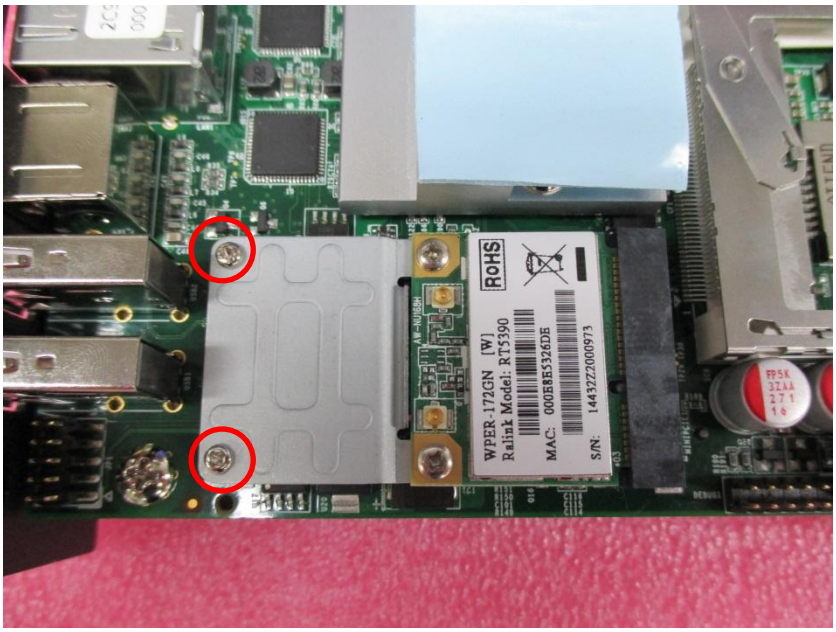
1. Locate the Mini PCIe slot.



2. Use provided two screws on bracket to fasten the module and bracket together.

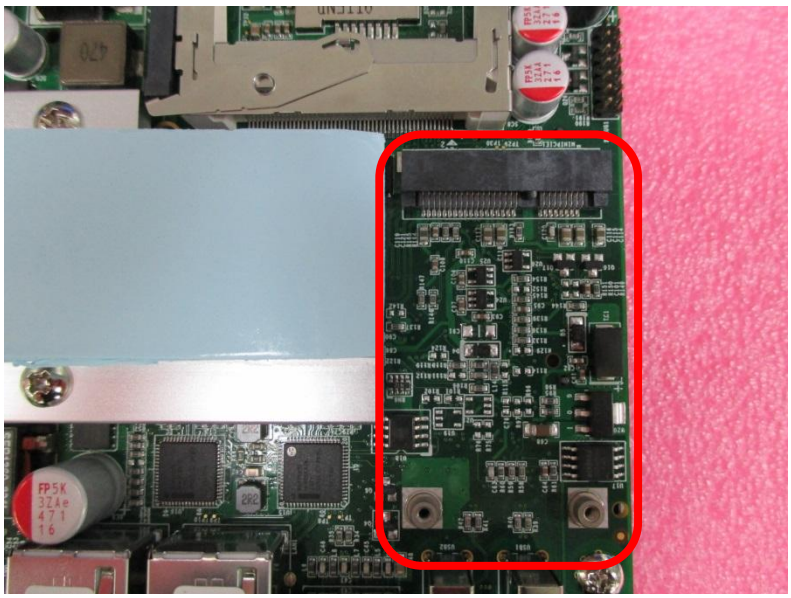
3. Tilt the Mini PCIe module at 45 degree angle and insert it to the slot until the gold-pated connector of module contacted firmly with the slot.

4. Press down the module and use the two screws to fix the module.

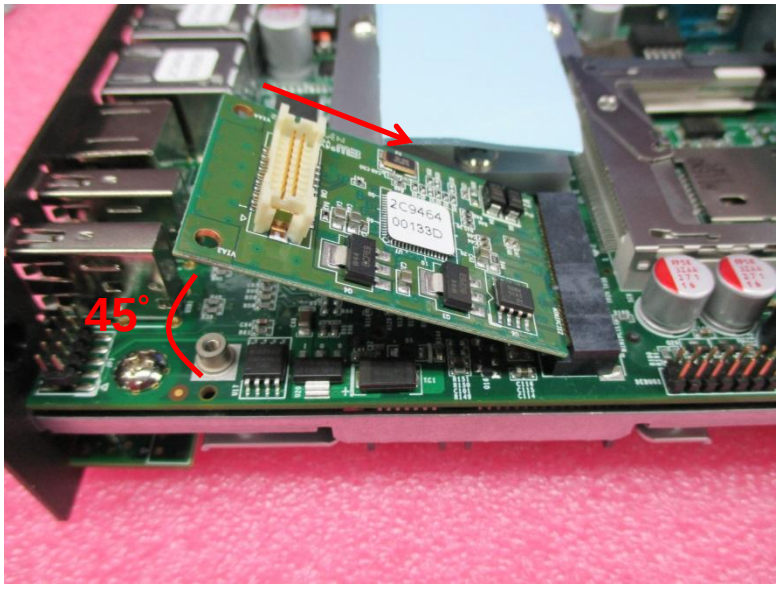


3.4 Installing a Full Size Mini PCIe Card on Top Side

1. Locate the Mini PCIe slot.



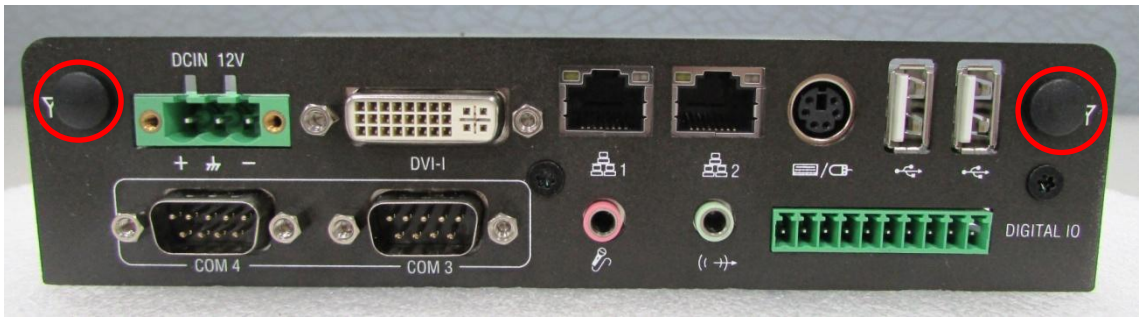
2. Tilt the Mini PCIe module at 45 degree angle and insert it to the slot until the gold-pated connector of module contacted firmly with the slot.



3. Press down the module and use the two screws to fix the module.

3.5 Installing Antennas

1. Remove the antenna hole covers at back panel.

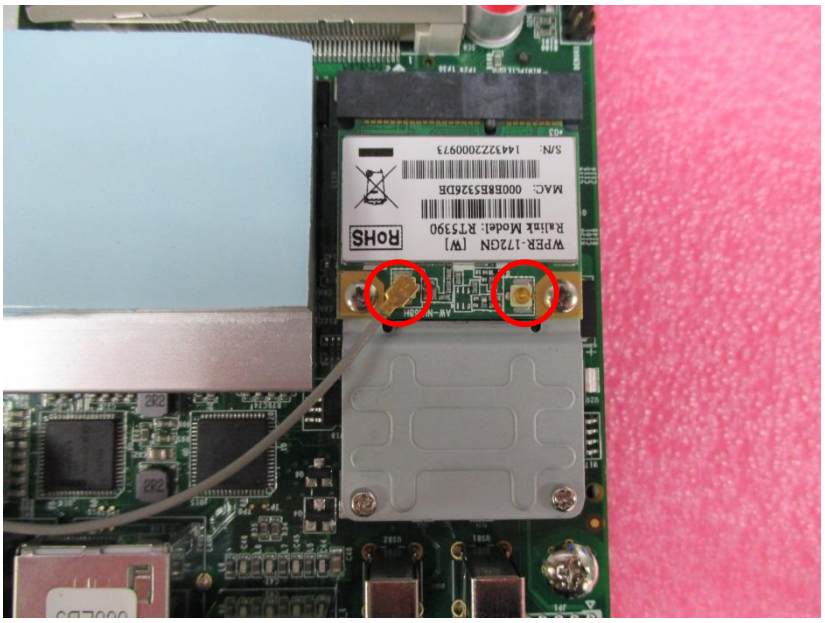


2. Have antenna jack penetrate through the hole.

3. Put on washer and fasten the nut with antenna jack.

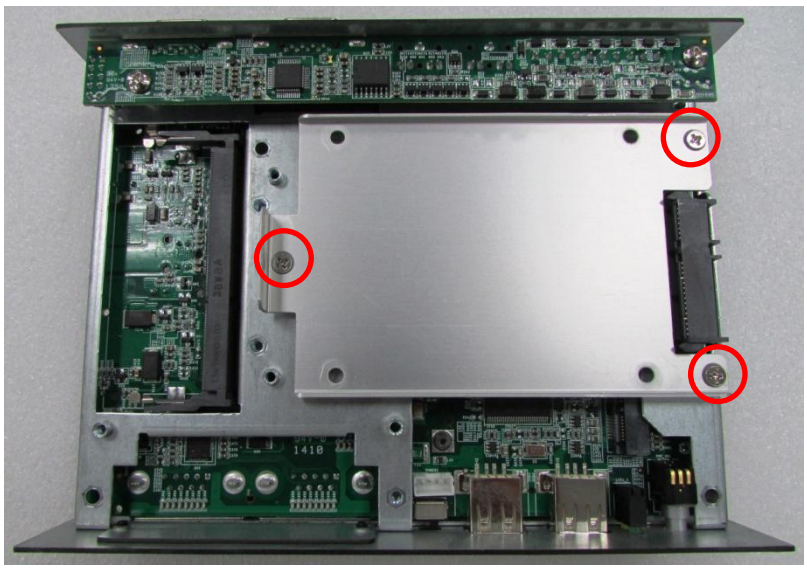
4. Assemble the antenna and antenna jack together.

5. Attach the RF connector at another end of cable onto the module.

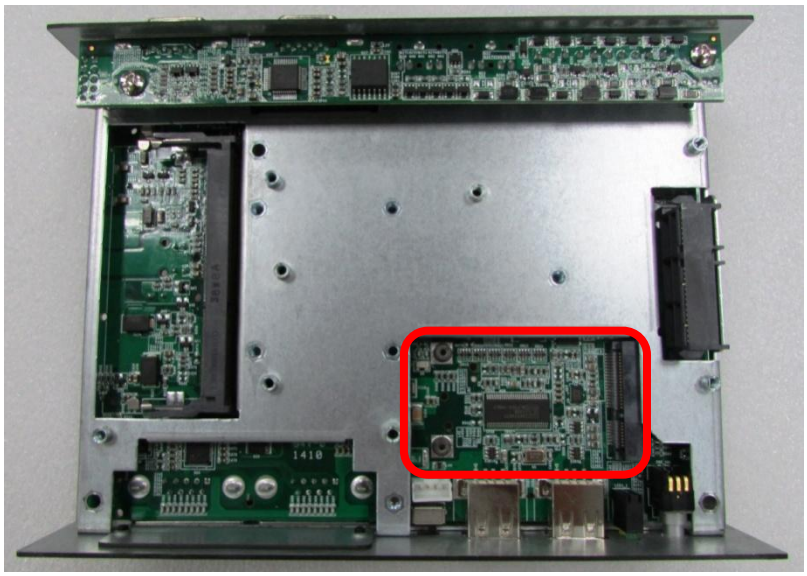


3.6 Installing a Mini PCIe Card on Bottom Side(Half Size)

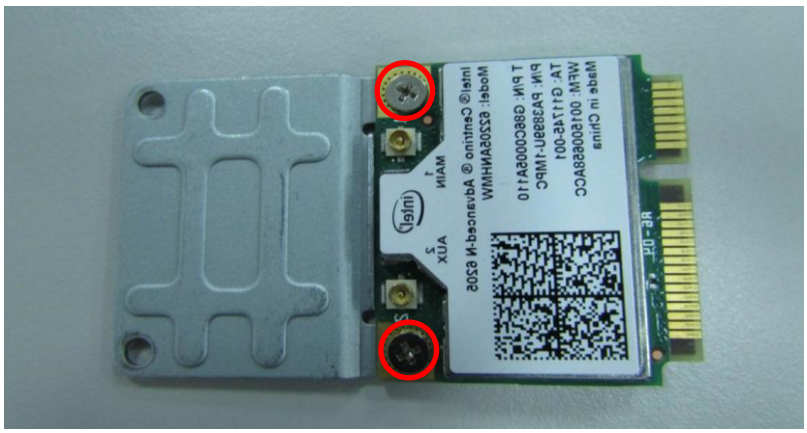
1. Turn over the body of unit. Unscrew the 3 screws on HDD bracket and remove the bracket.



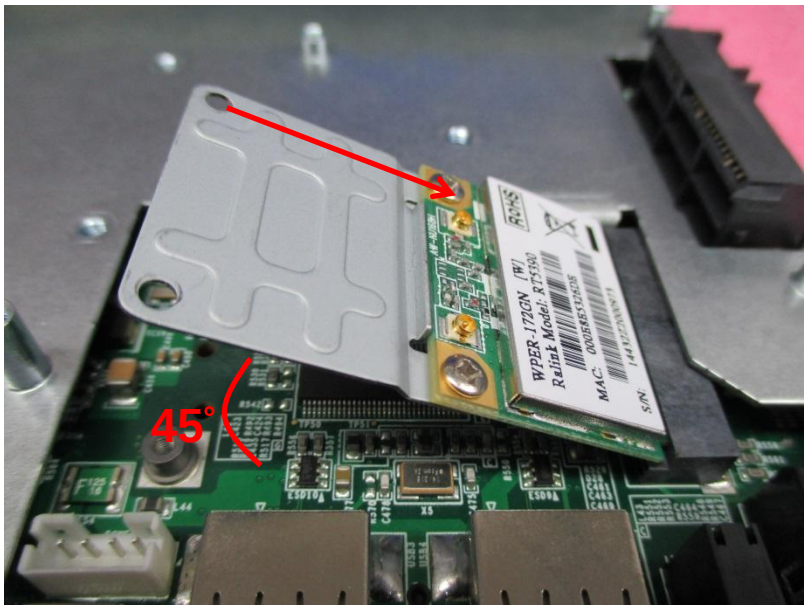
2. Locate the Mini PCIe slot.



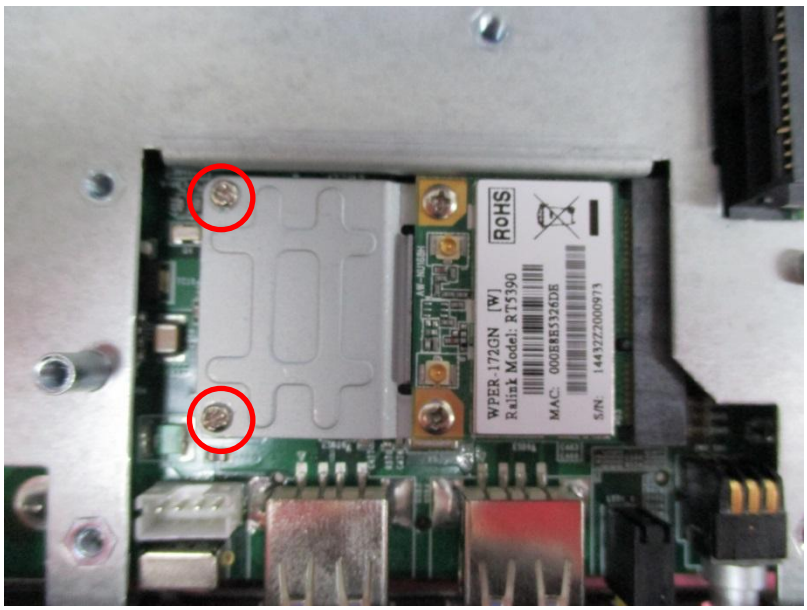
3. Use provided two screws on bracket to fasten the module and bracket together.



4. Tilt the Mini PCIe module at 45 degree angle and insert it to the slot until the gold-pated connector of module contacted firmly with the slot.

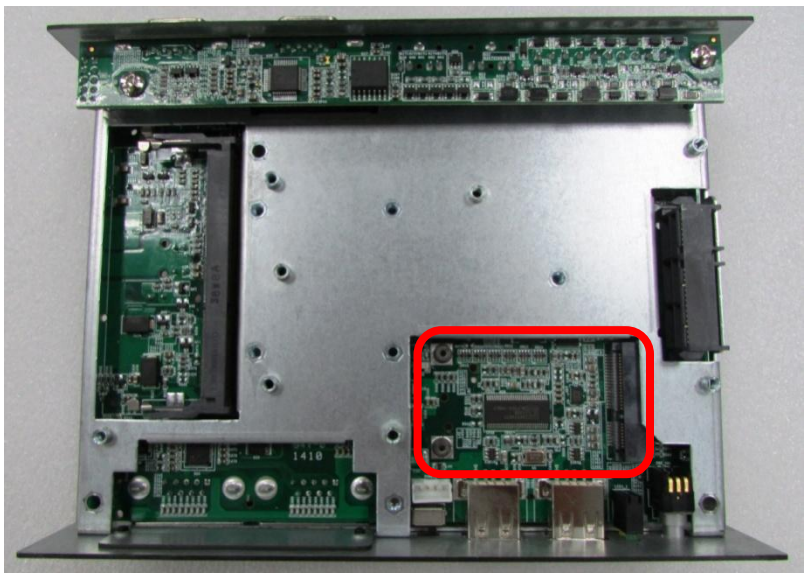


5. Press down the module and use the two screws to fix the module.

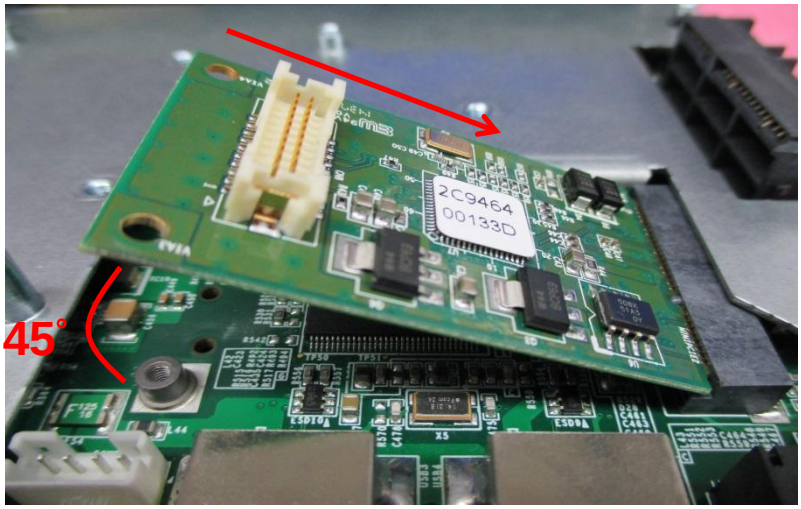


3.7 Installing a Full Size Mini PCIe Card on Bottom Side

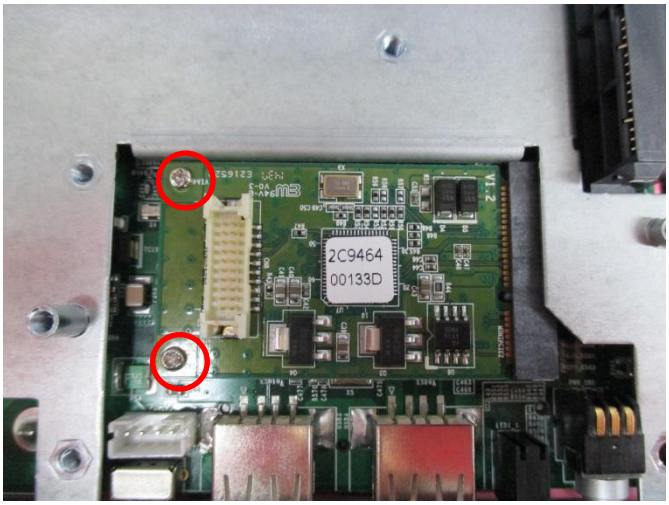
1. Locate the Mini PCIe slot.



2. Tilt the Mini PCIe module at 45 degree angle and insert it to the slot until the gold-pated connector of module contacted firmly with the slot.

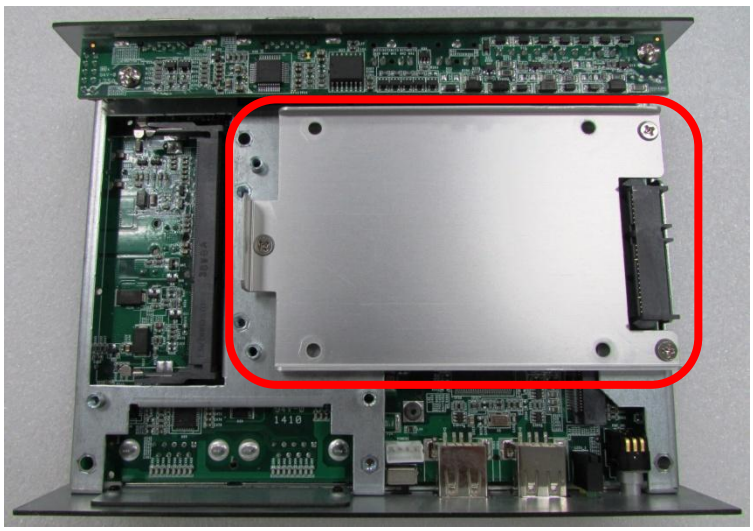


3. Press down the module and use the two screws to fix the module.

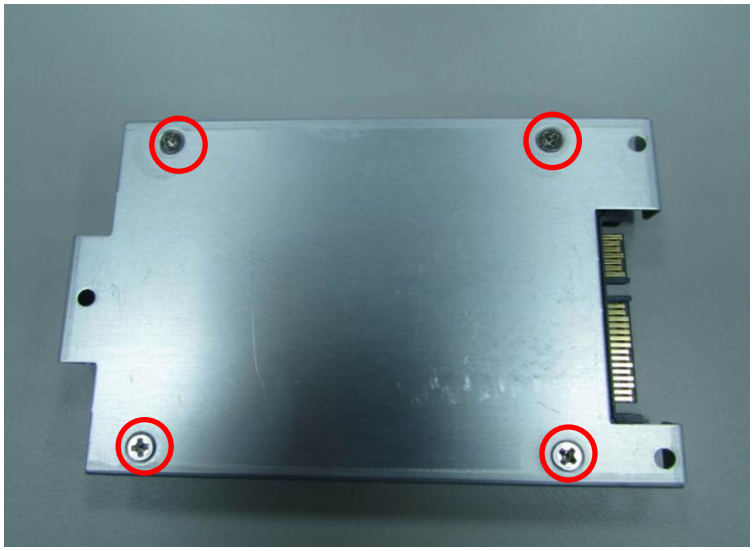


3.8 Installing a SATA Hard Drive

1. Lift up the empty HDD bracket by unscrewing the 3 screws.



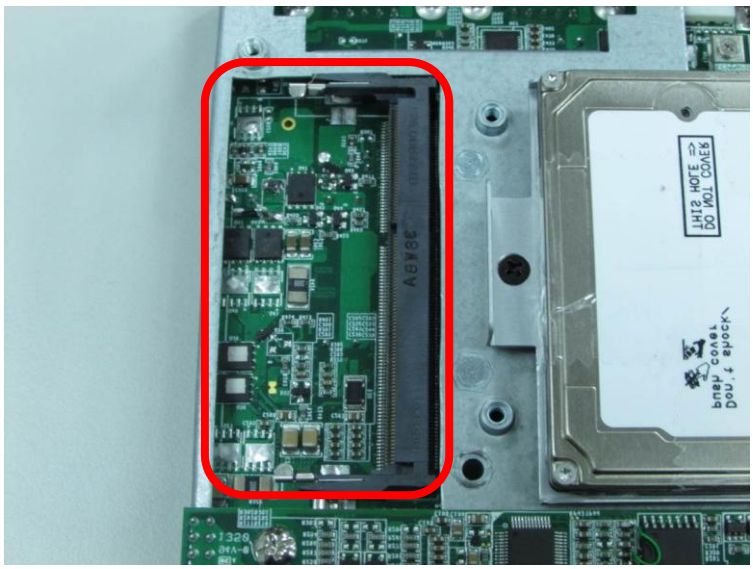
2. Make the PCB side of the HDD face up, place the HDD bracket on it. Ensure the direction of bracket is correct and use 4 provided screws to assemble HDD and HDD bracket together.



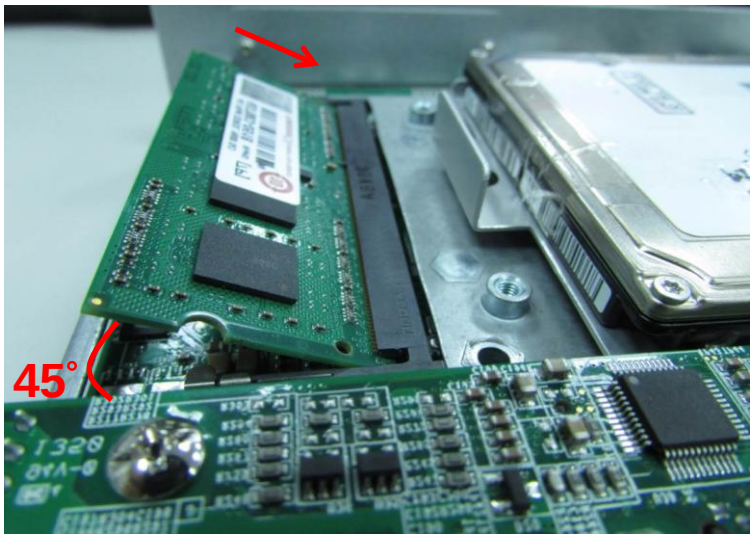
3. Turn over the HDD bracket. Connect the HDD bracket to the SATA connector of the unit and fasten the 3 screws.

3.9 Installing a SODIMM

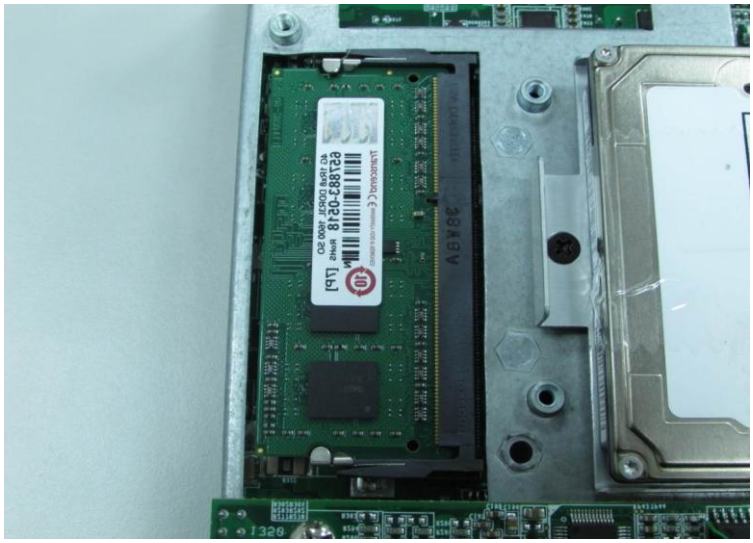
1. Locate SODIMM socket.



2. Tilt the SODIMM module at a 45 degree angle and insert it to SODIMM socket until the gold-pated connector of module contacted firmly with the socket.

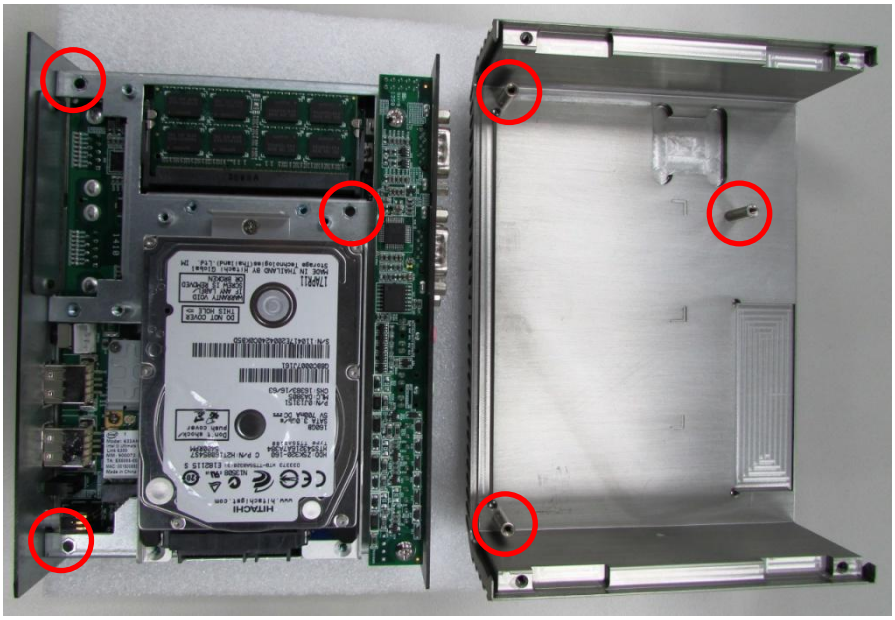


3. Press the module down until its fixed firmly by the two locking latches on the sides.

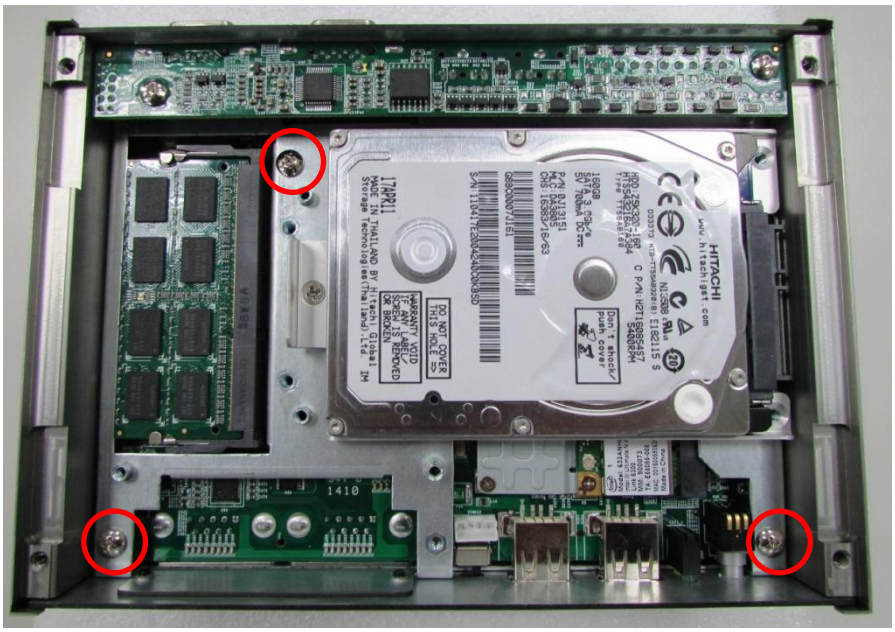


3.10 Installing the Chassis

1. Hold the body of unit, level the 3 screw holes with the hollow studs on the chassis.



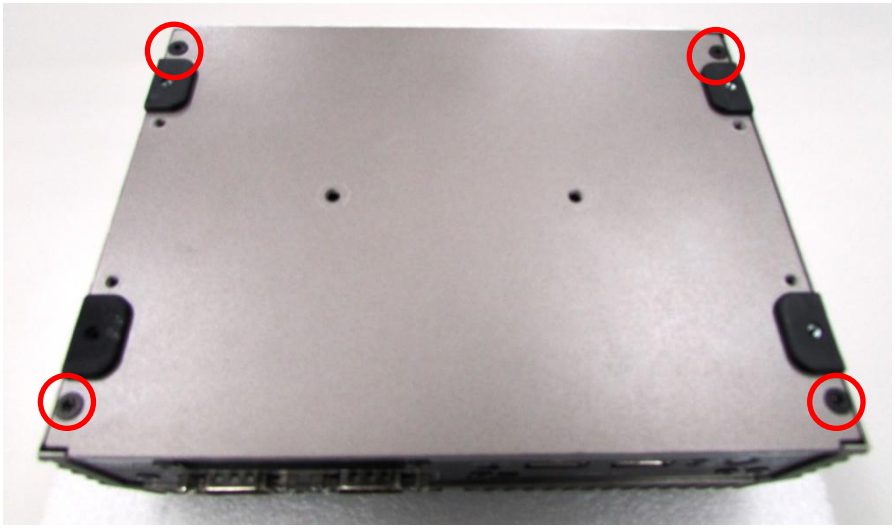
2. Make sure the either sides of front and rear panels are in the chassis grooves and insert the body of unit into Chassis. Use the 3 screws to fasten the body and chassis together.



3.11 Installing the Chassis Bottom Cover

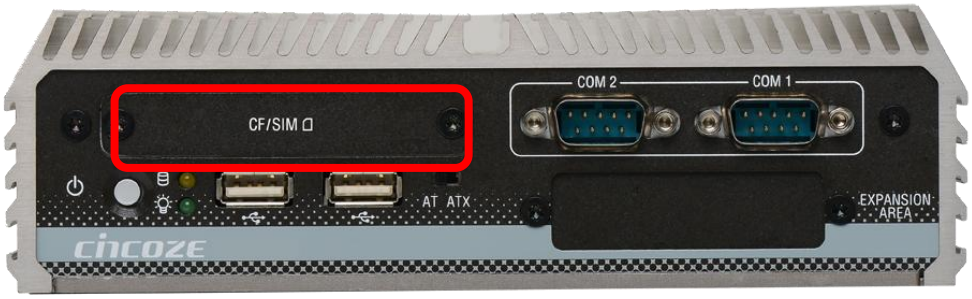
1. Level the grooves on bottom cover with front and rear panels. Put on the cover.

2. Fasten the 4 screws to fix the cover.



3.12 Installing a SIM Card

1. SIM card slot is at the front panel of the system.



2. Remove the mounting cover by unscrewing the two screws.

3. Insert the SIM card.

3.13 Installing a CF Card

1. Locate the CF card slot.

2. Remove the mounting cover by unscrewing the two screws.

3. Insert the CF card.

3.14 Wall Mount Brackets

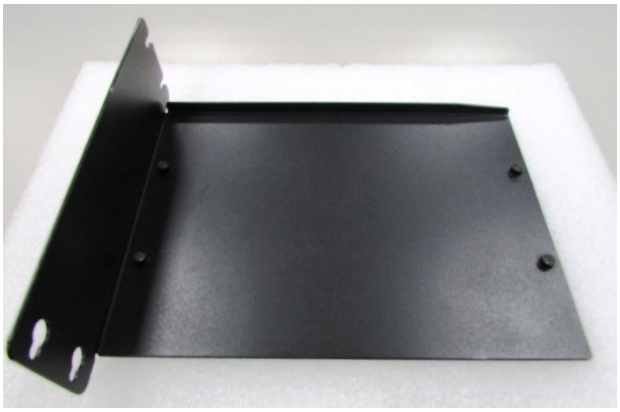
DC-1000 offers Wall Mount that customers can install system on the wall in convenient and economical way.

1. The mounting holes are at the bottom of system. Use provided 4 screws to fasten the bracket with each side of system together.

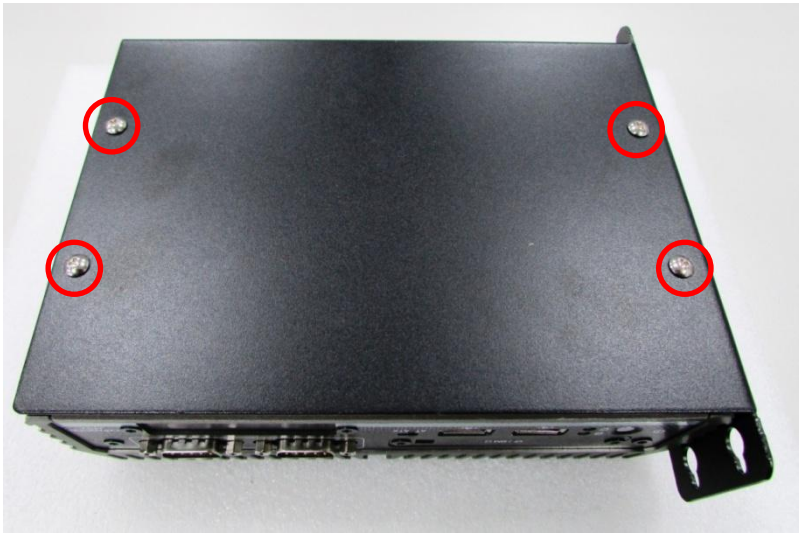
2. Fasten the screws through the bracket mounting hole to mount system on the wall.

3.15 Side Mount Bracket

DC-1000 offers Side Mount that customer can install system to the right or left side of wall to create effective of space.



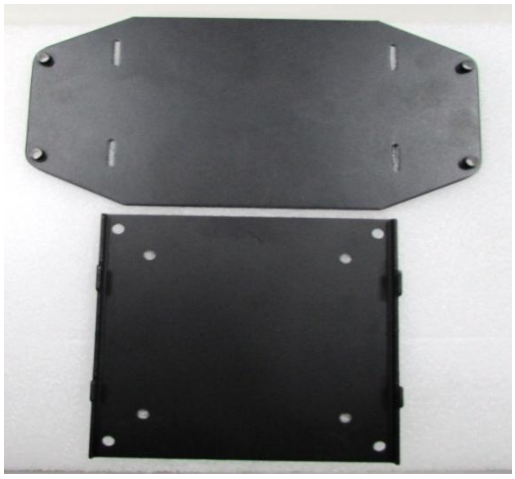
1. The mounting holes are at the bottom of system. Fasten the 4 screws to fix the side mount bracket with system together.



2. Fasten the screws through the bracket mounting hole to mount system on the wall.

3.16 VESA Mount Brackets

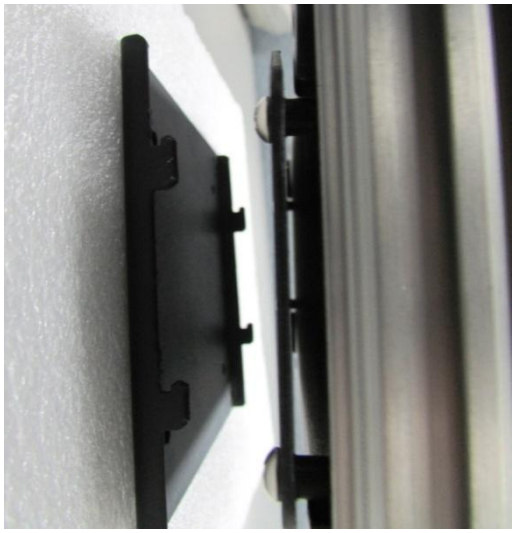
DC-1000 offers VESA Mount that customer can mount system with panel complying with VESA 75mm and 100 mm standard for various usage.



1. The mounting holes are at the bottom of system. Fasten the 4 screws to fix the first bracket with system.

2. Fasten the 4 screws through the second bracket mounting holes with panel.

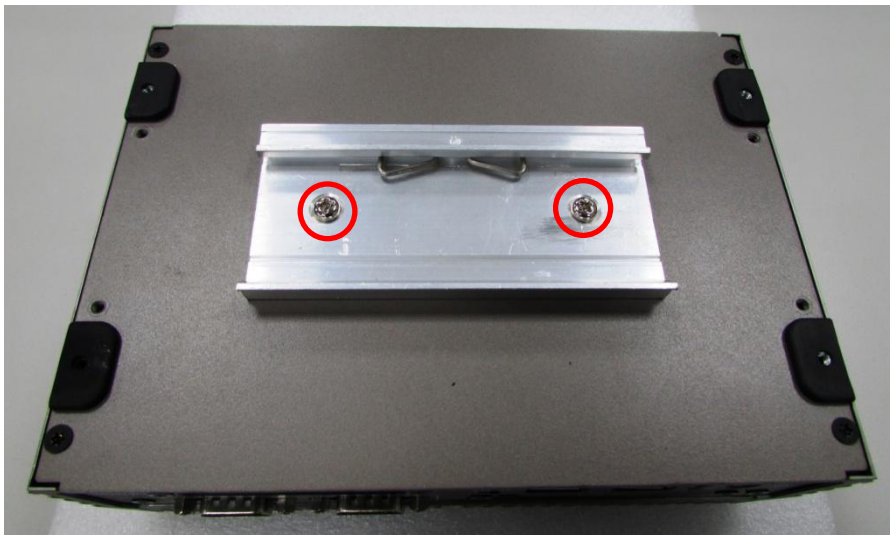
3. Hang the system on the back of panel by using the hooks on second bracket.



3.17 DIN-Rail Mount Bracket

DC-1000 offers DIN-Rail Mount that customer can install system on the DIN Rail.

1. The mounting holes are at the bottom of system. Fasten the 2 screws to fix the DIN-Rail mount bracket with system together.



Chapter 4

BIOS Setup

4.1 BIOS Introduction

The BIOS (Basic Input/Output System) is a program located on a Flash Memory on the motherboard. When you start the computer, the BIOS program will gain control. The BIOS first operates an auto-diagnostic test called POST (power on self test) for all the necessary hardware, it detects the entire hardware device and configures the parameters of the hardware synchronization.

4.1.1 BIOS Setup

Power on the computer and by pressing <Del> immediately allows you to enter Setup. If the message disappears before your respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing <Ctrl>, <Alt> and <Delete> keys.

Control Keys	
<↑> <↓> <←> <→>	Move to select screen
<Enter>	Select item
<Esc>	Quit the BIOS Setup
<+>	Increases the numeric value or makes changes
<->	Decreases the numeric value or makes changes
<Tab>	Select setup fields
<F1>	General help
<F9>	Load Optimized defaults
<F10>	Save configuration and Exit

4.1.2 Main Menu

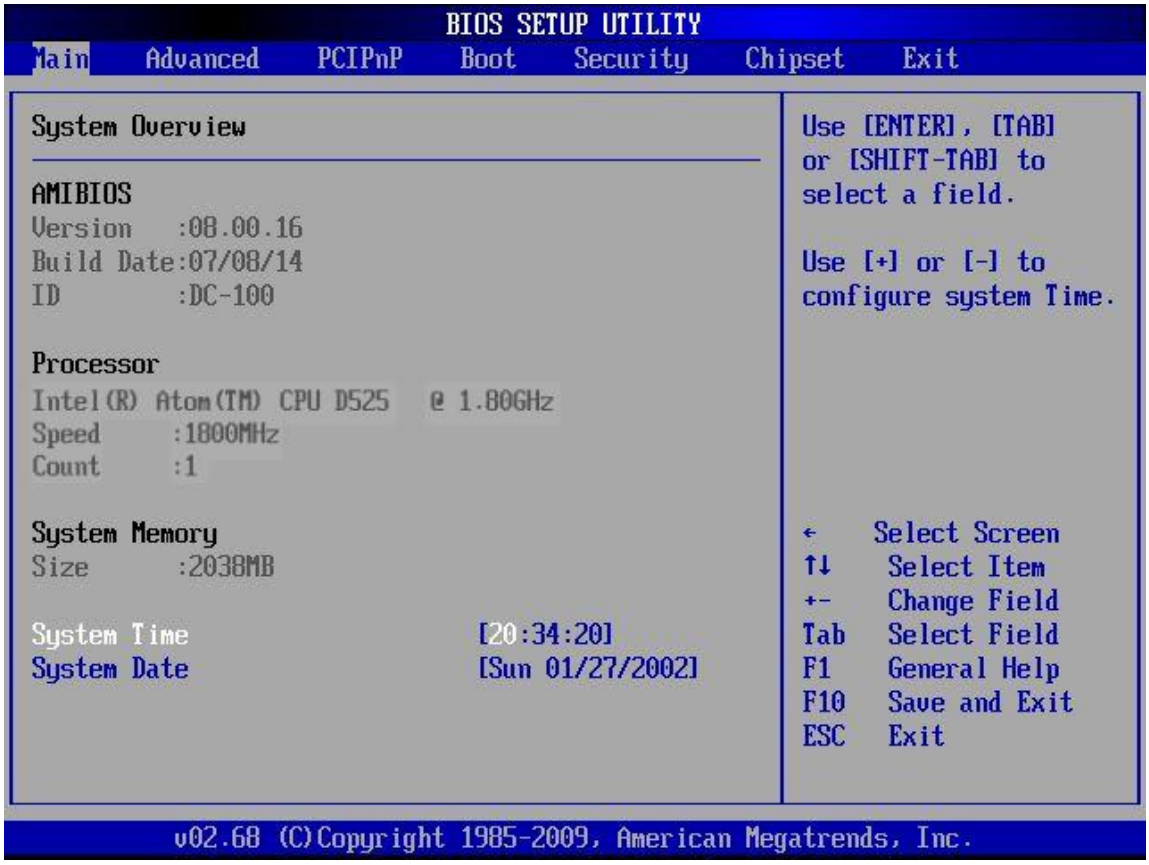
The main menu lists the setup functions you can make changes to. You can use the arrow keys (↑↓) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

4.1.3 Sub-Menu

If you find a right pointer symbol appears to the left of certain fields that means a sub-menu can be launched from this field. A sub-menu contains additional options for a field parameter. You can use arrow keys (↑↓) to highlight the field and press <Enter> to call up the sub-menu. Then you can use the control keys to enter values and move from field to field within a sub-menu. If you want to return to the main menu, just press the <Esc >.

4.2 Main Setup

Press <Del> to enter BIOS CMOS Setup Utility, the Main Menu (as shown below) will appears on the screen. Use arrow keys to move among the items and press <Enter> to accept or enter a sub-menu.



4.2.1 System Time

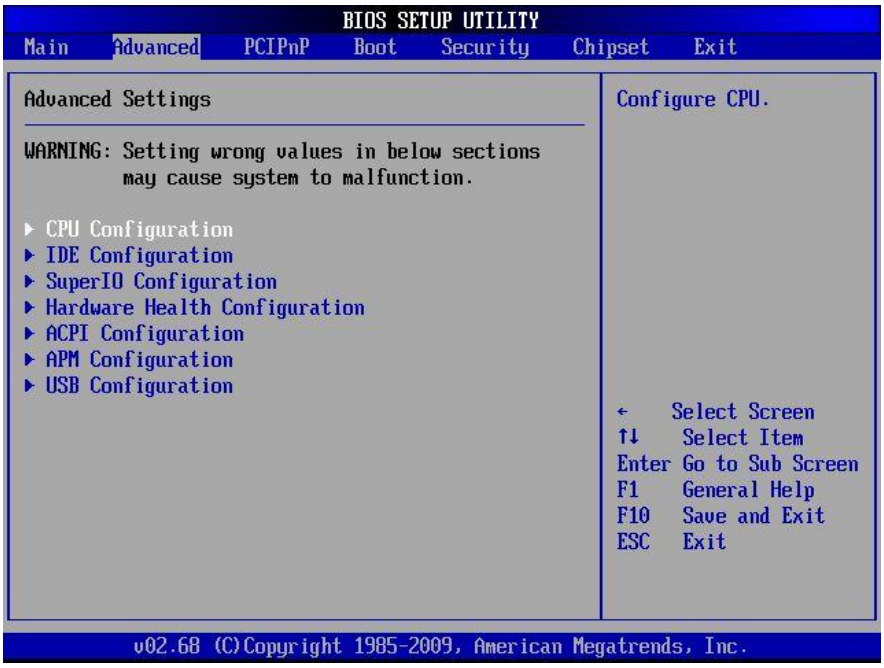
Set the date. Please use <Tab> to switch between time elements.

4.2.2 System Date

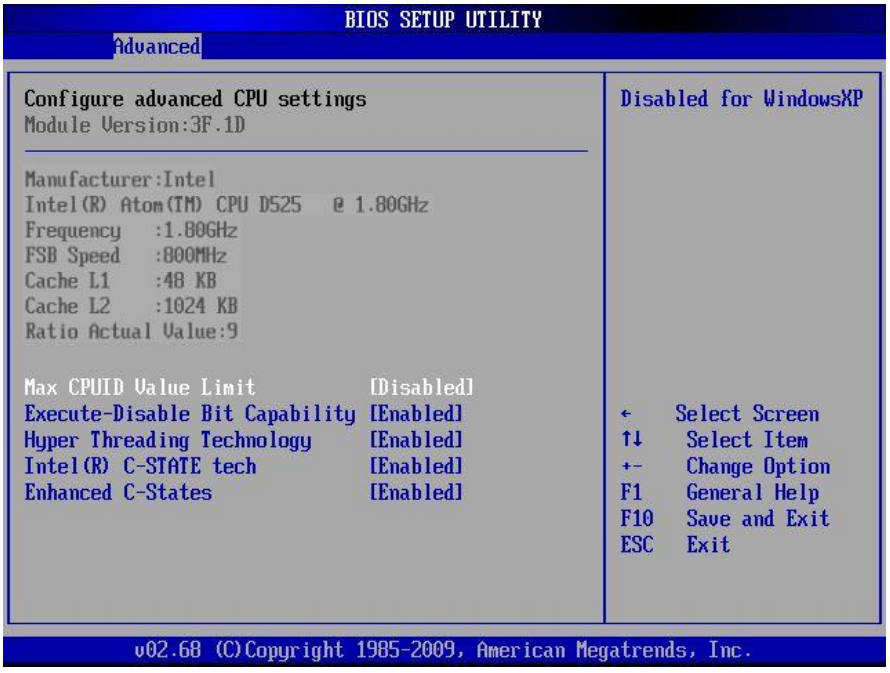
Set the time. Please use <Tab> to switch between date elements.

4.3 Advanced Setup

The Advanced menu allows users to set configuration of the CPU and other system devices. You can select any of the items in the left frame of the screen to go to the sub menus.



4.3.1 CPU Configuration



■ **Max CPUID Value Limit**
This item will allow users to limit CPUID maximum value.

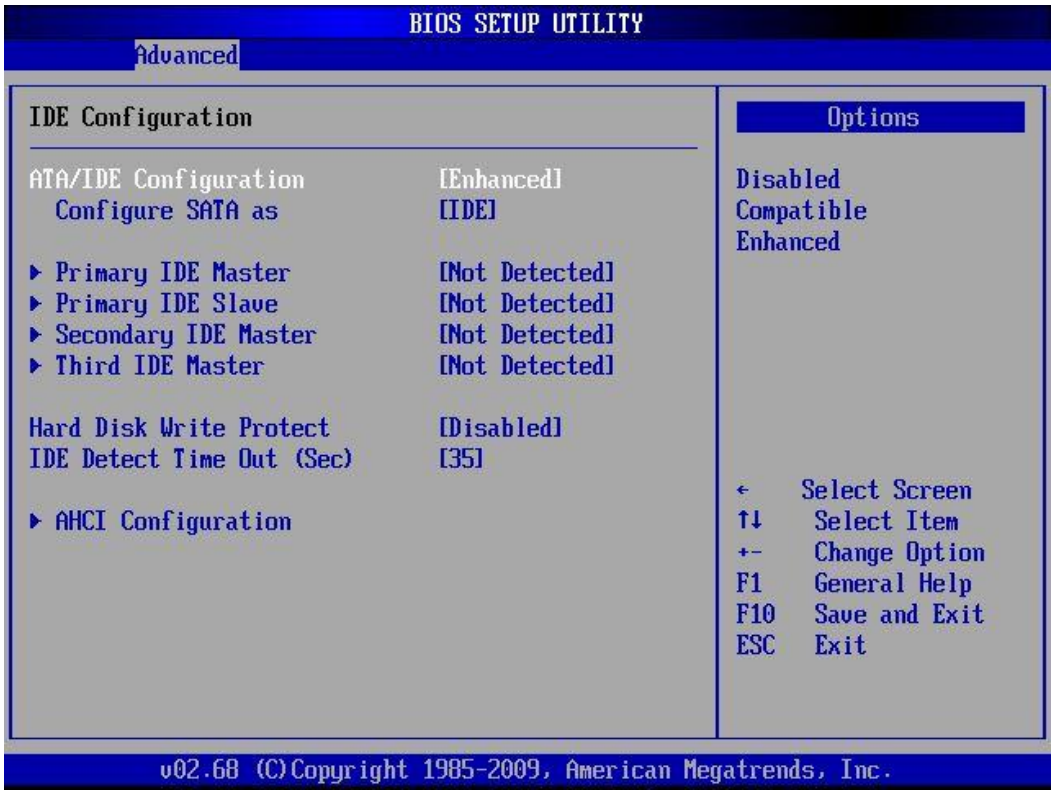
■ **Execute-Disable Bit Capability**
This item will allow users to enable or disable the No-Execution page protection technology.

■ **Hyper Threading Technology**
This item will allow users to enable or disable Intel Hyper Threading technology.

■ **Intel (R) C-STATE tech**
This item allows the CPU to save more power under idle mode.

■ **Enhanced C-States**
CPU idle set to enhanced C-States, disabled by Intel C-STATE tech item.

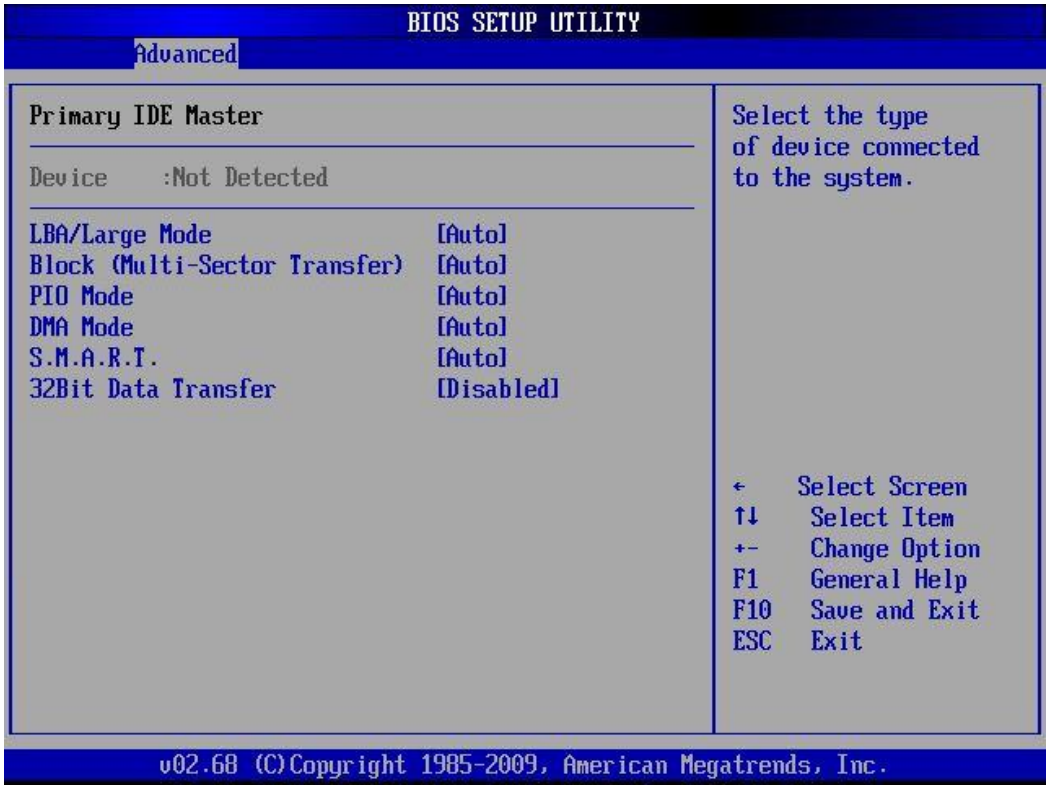
4.3.2 IDE Configuration



■ **ATA/IDE Configuration**
This can be configured as Disabled, Compatible or Enhanced.

■ **Configure SATA as**
This can be configured as IDE or AHCI.

■ **Primary, Secondary, and Third Master/Slave**
While entering setup, the BIOS automatically detects the presence of SATA/CF devices. This displays the status of SATA device auto-detection.

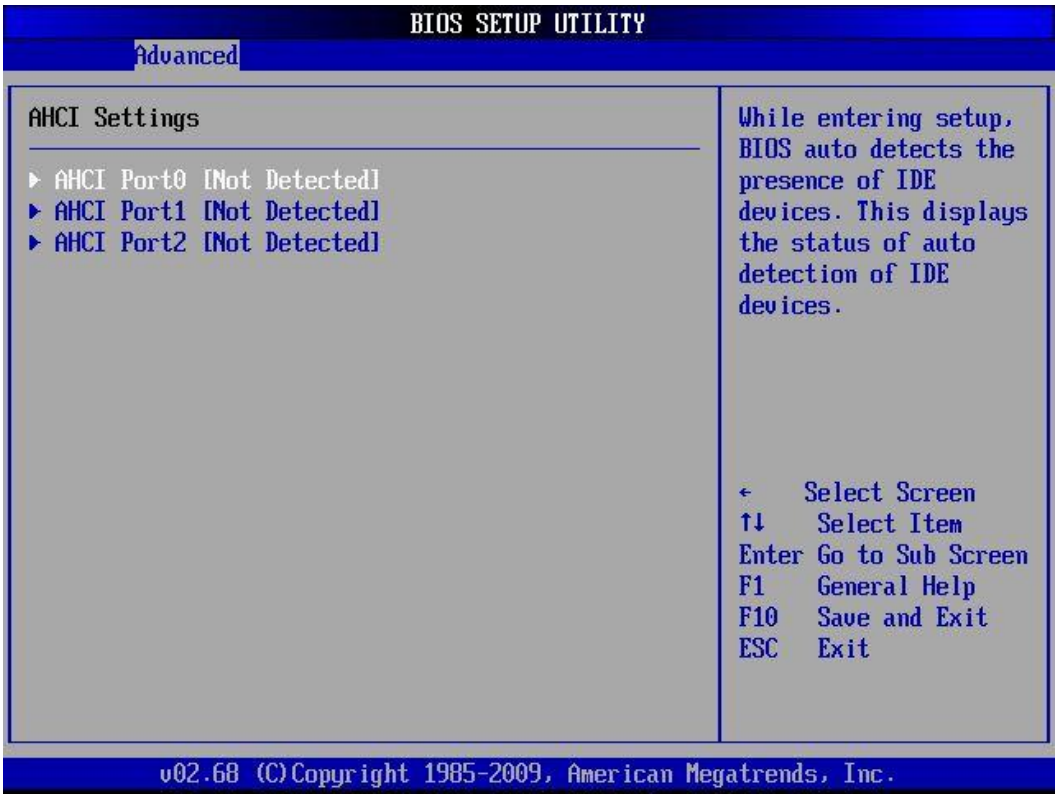


- **LBA/Large Mode**
  Enabling LBA causes Logical Block Address-ing to be used in place of Cylinders, Heads and Sectors.
- **Block (Multi-Sector Transfer)**
  Any selection except Disabled determines the number of sectors transferred per block.
- **PIO Mode**
  Indicates the type of PIO (Programmed Input/Output).
- **DMA Mode**
  Indicates the type of Ultra DMA.
- **S.M.A.R.T.**
  This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) capability for the hard disks. S.M.A.R.T is a utility that monitors your disk status to predict hard disk failure. This gives you an opportunity to move data from a hard disk that is going to fail to a safe place before the hard disk becomes offline.
- **32Bit Data Transfer**
  Enables 32-bit communication between CPU and IDE controller.

■ **Hard Disk Write Protect**
Disable/Enable device write protection. This will be effective only if device is accessed through BIOS.

■ **IDE Detect Time Out (Sec)**
This item will allow users to select the time out value for detecting ATA/ATAPI device(s).

■ **AHCI Configuration**
Use this item to select options for the AHCI Configuration and change the value of the selected option.


BIOS SETUP UTILITY
Advanced
AHCI Settings
AHCI Port0 [Not Detected]
AHCI Port1 [Not Detected]
AHCI Port2 [Not Detected]
While entering setup, BIOS auto detects the presence of IDE devices. This displays the status of auto detection of IDE devices.
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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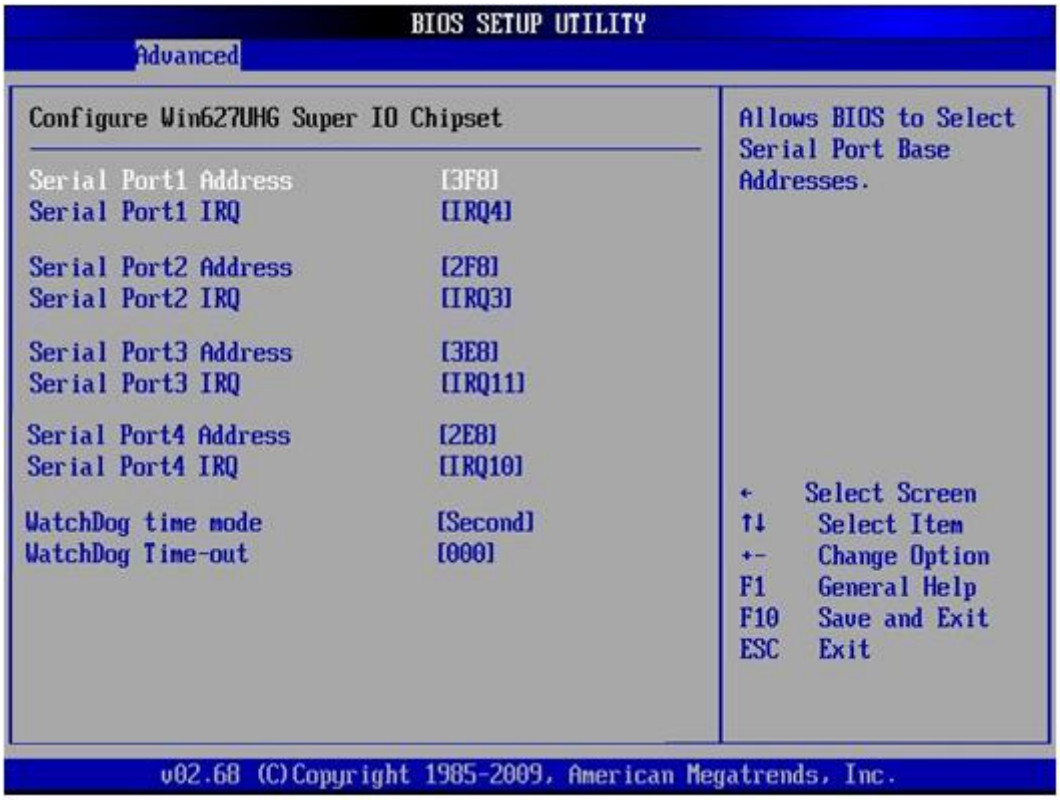
4.3.3 Super IO Configuration

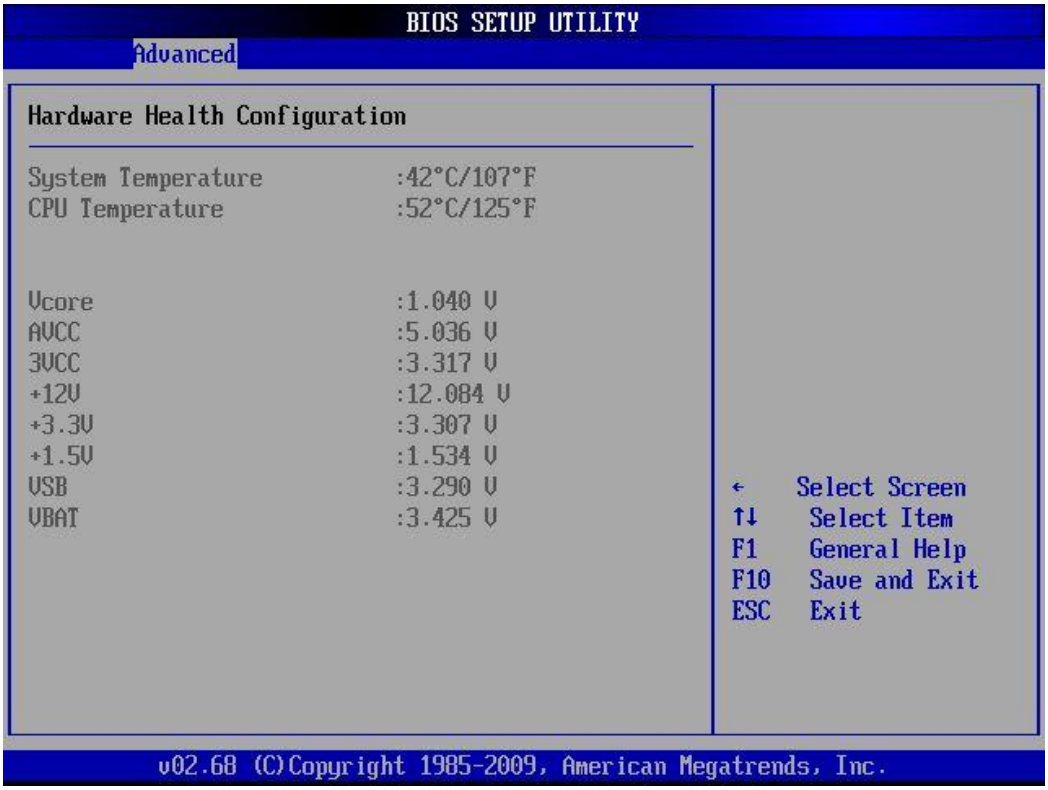
This item enables users to set the Super IO device status, including enabling of COMs.



■ **Serial port 1 Address [3F8]**
This item allows user to adjust serial port 1 address.
Serial port 1 IRQ [IRQ4]
This item allows user to adjust serial port 1 IRQ.
■ **Serial port 1 Address [2F8]**
This item allows user to adjust serial port 1 address.
Serial port 1 IRQ [IRQ3]
This item allows user to adjust serial port 1 IRQ.
■ **Serial port 1 Address [3E8]**
This item allows user to adjust serial port 1 address.
Serial port 1 IRQ [IRQ11]
This item allows user to adjust serial port 1 IRQ.
■ **Serial port 1 Address [2E8]**
This item allows user to adjust serial port 1 address.
Serial port 1 IRQ [IRQ10]
This item allows user to adjust serial port 1 IRQ.
■ **WatchDog time mode**
Change the Watch dog mode. Select <Sec> or <Min> mode.
■ **WatchDog Time-out**
User can set a value in the range of 0 to 255.

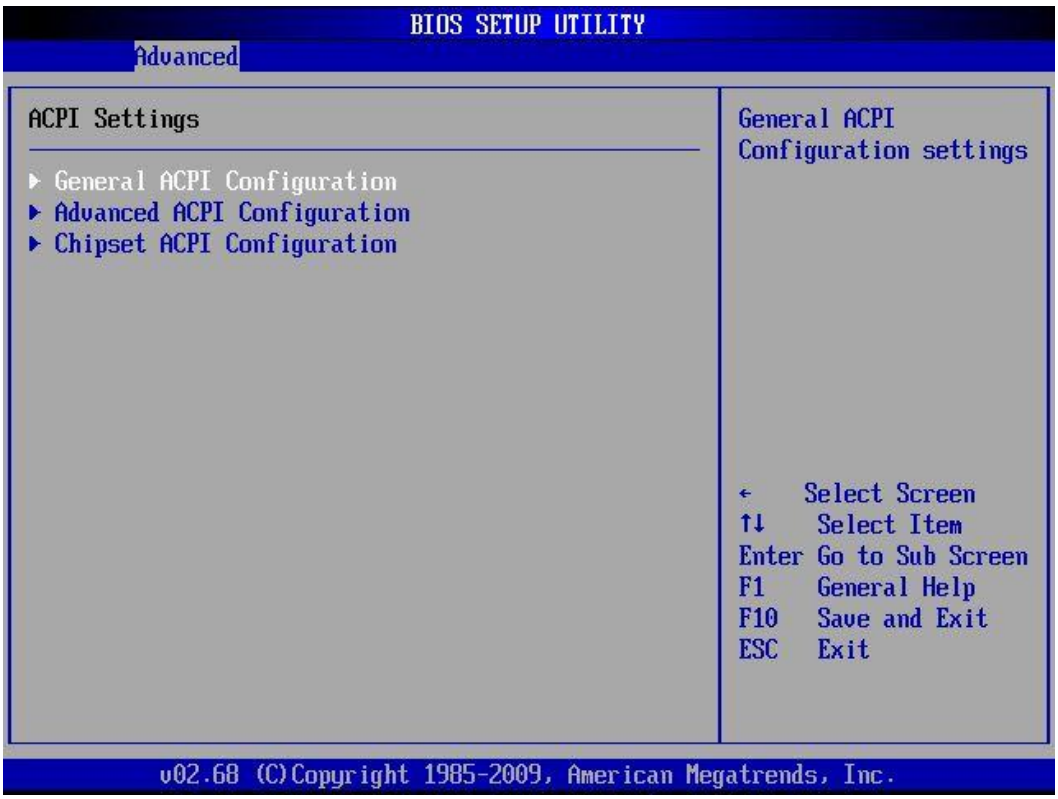
4.3.4 Hardware Health Configuration

These items display the current status of all monitored hardware devices/ components such as voltages and temperatures.

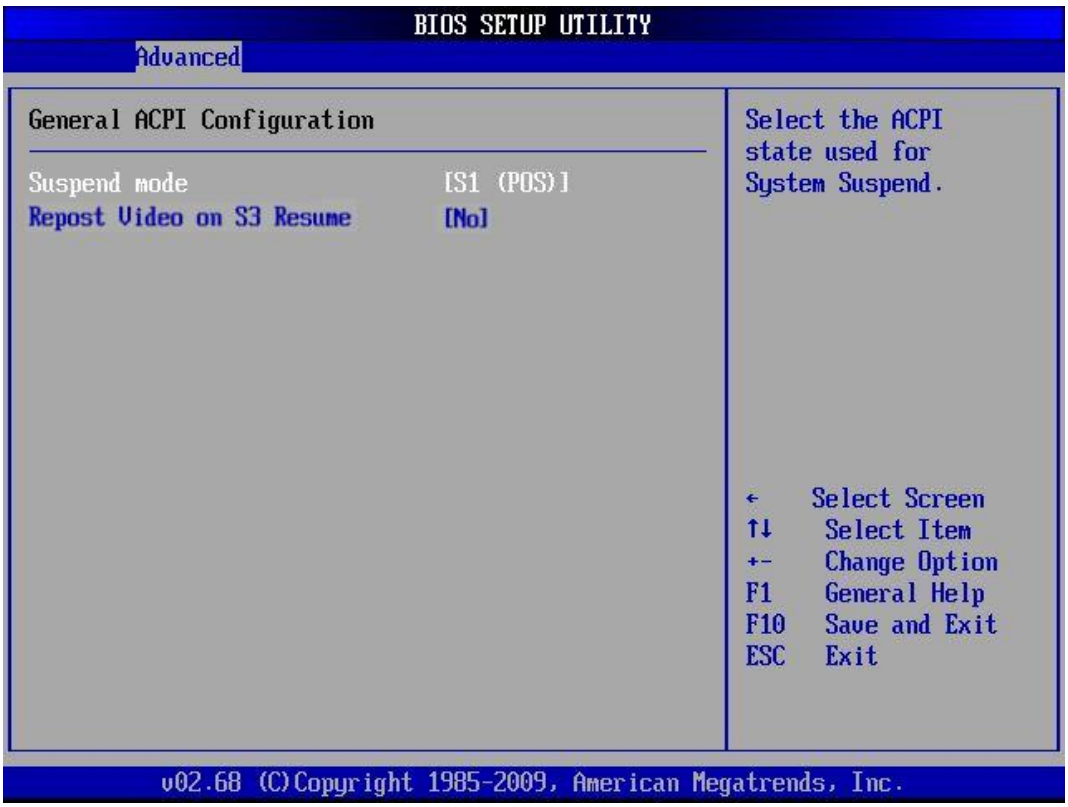


4.3.5 ACPI Configuration

Use this item to select options for the ACPI Settings, and change the value of the selected option.



■ General ACPI Configuration



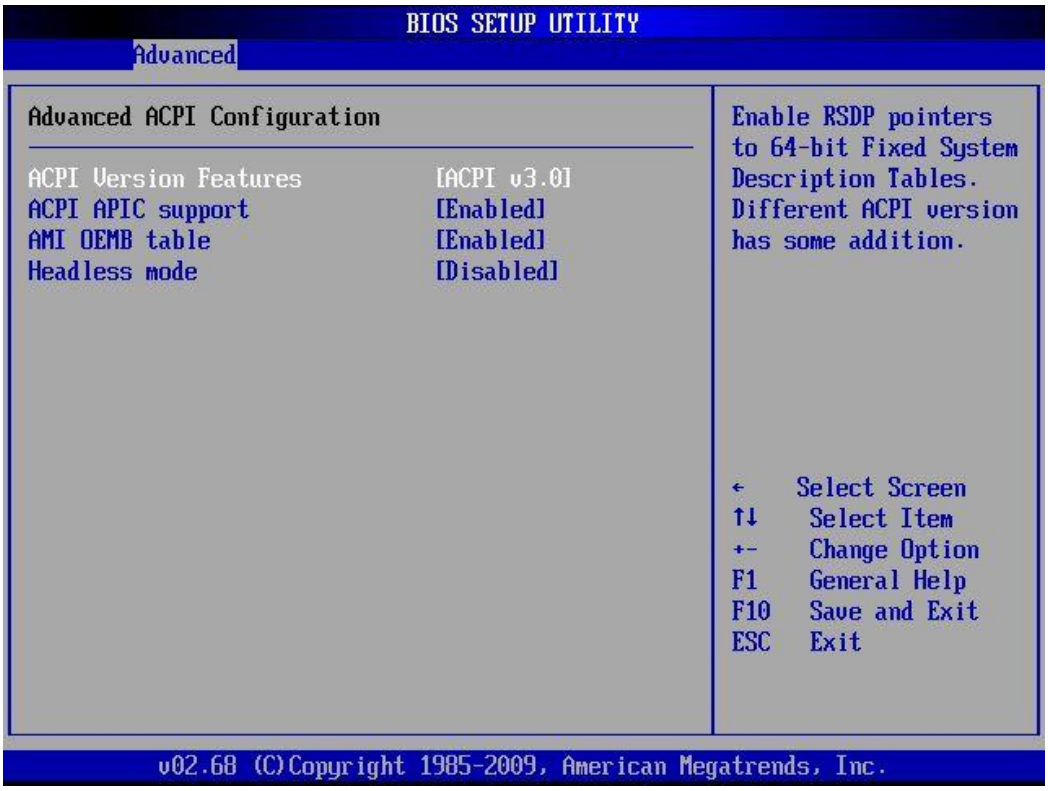
□ Suspend mode

Select the ACPI state used for system suspend.

□ Report Video on S3 Resume

This item allows you to invoke VA BIOS POST on S3/STR resume.

■ Advanced ACPI Configuration


BIOS SETUP UTILITY
Advanced
Advanced ACPI Configuration
ACPI Version Features [ACPI v3.0]
ACPI APIC support [Enabled]
AMI OEMB table [Enabled]
Headless mode [Disabled]
Enable RSDP pointers to 64-bit Fixed System Description Tables. Different ACPI version has some addition.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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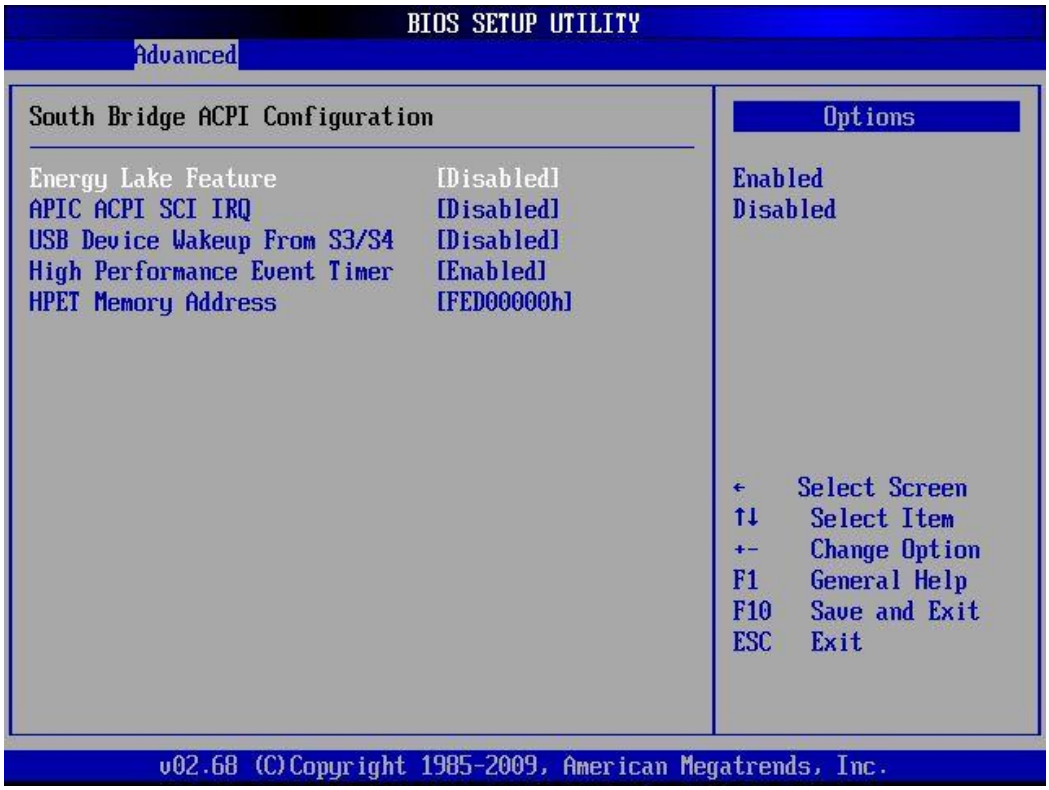
☐ ACPI Version Features
This item allows user to enable RSDP pointers to 64-bit fixed system description tables.

☐ ACPI APIC support
Include APIC table pointer to RSDT pointer list.

☐ AMI OEMB table
Include OEMB table pointer to R(x)SDT pointer lists.

☐ Headless mode
Enable / Disable Headless operation mode through ACPI.

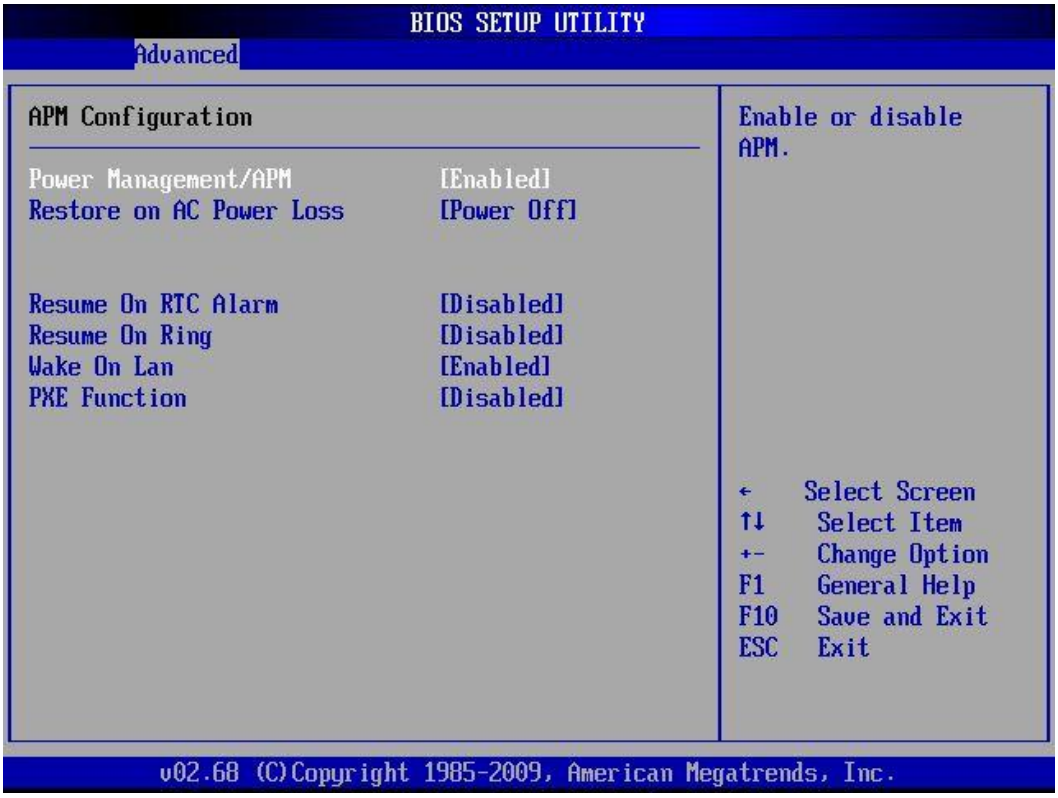
■ Chipset ACPI Configuration



- **Energy Lake Feature**
  Allows user to configure Intel's Energy Lake power management technology.
- **APIC ACPI SCI IRQ**
  Enable/Disable APIC ACPI SCI IRQ.
- **USB Device Wakeup From S3/S4**
  Enable/Disable USB Device Wakeup from S3/S4.
- **High Performance Event Timer**
  Enable/Disable High performance Event timer.
- **HPET Memory Address**
  It will provide you with the means to get to it via the various ACPI methods

4.3.6 APM Configuration

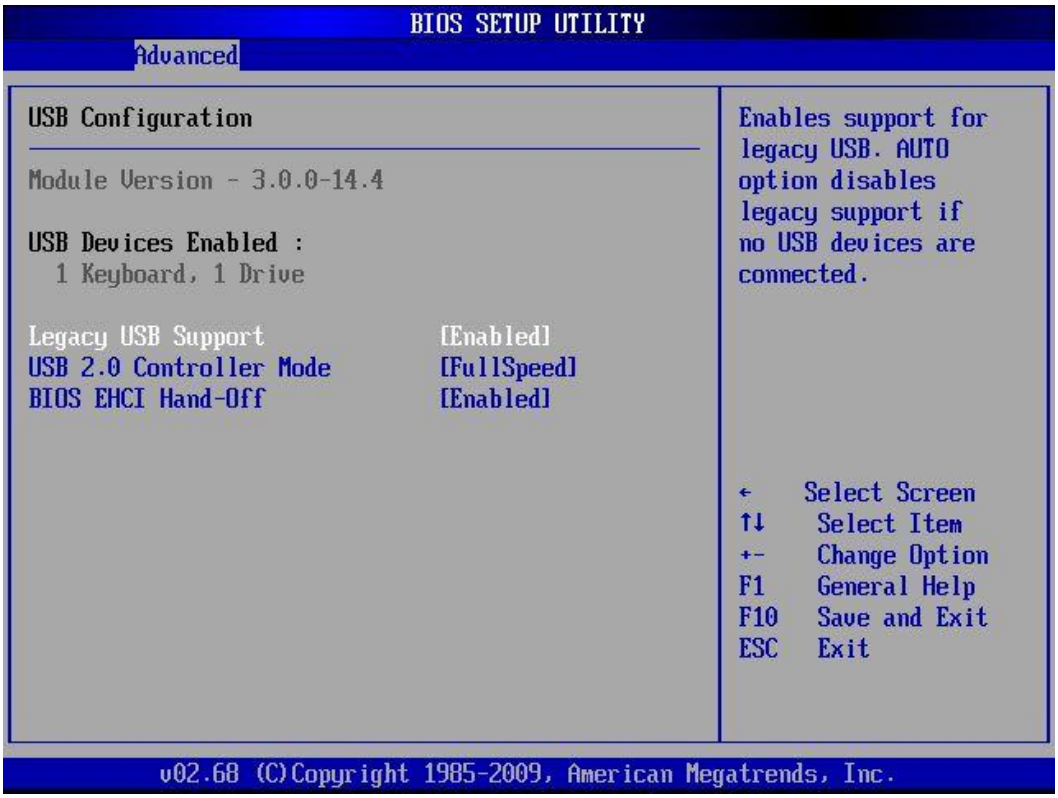
Use this item to select options for the APM Configuration, and change the value of the selected option. Available options of the selected item appear on the right side of the screen.



- **Power Management/APM**
  Enable or disable APM power management function.
- **Restore on AC Power Loss**
  This option allows user to set system action when AC power restores after AC power loss. Available options include Power Off, Power On, Last Status.
- **Resume On RTC Alarm**
  Disable/Enable RTC wake event.
- **Resume On Ring**
  Disable/Enable RI wake event.
- **Wake On Lan**
  Disable/Enable Lan wake event.
- **PXE Function**
  Disable/Enable PXE function.

4.3.7 USB Configuration

You can use this item to select options for the USB Configuration, and change the value of the selected option.


BIOS SETUP UTILITY
Advanced
USB Configuration
Module Version - 3.0.0-14.4
USB Devices Enabled :
1 Keyboard, 1 Drive
Legacy USB Support [Enabled]
USB 2.0 Controller Mode [FullSpeed]
BIOS EHCI Hand-Off [Enabled]
Enables support for legacy USB. AUTO option disables legacy support if no USB devices are connected.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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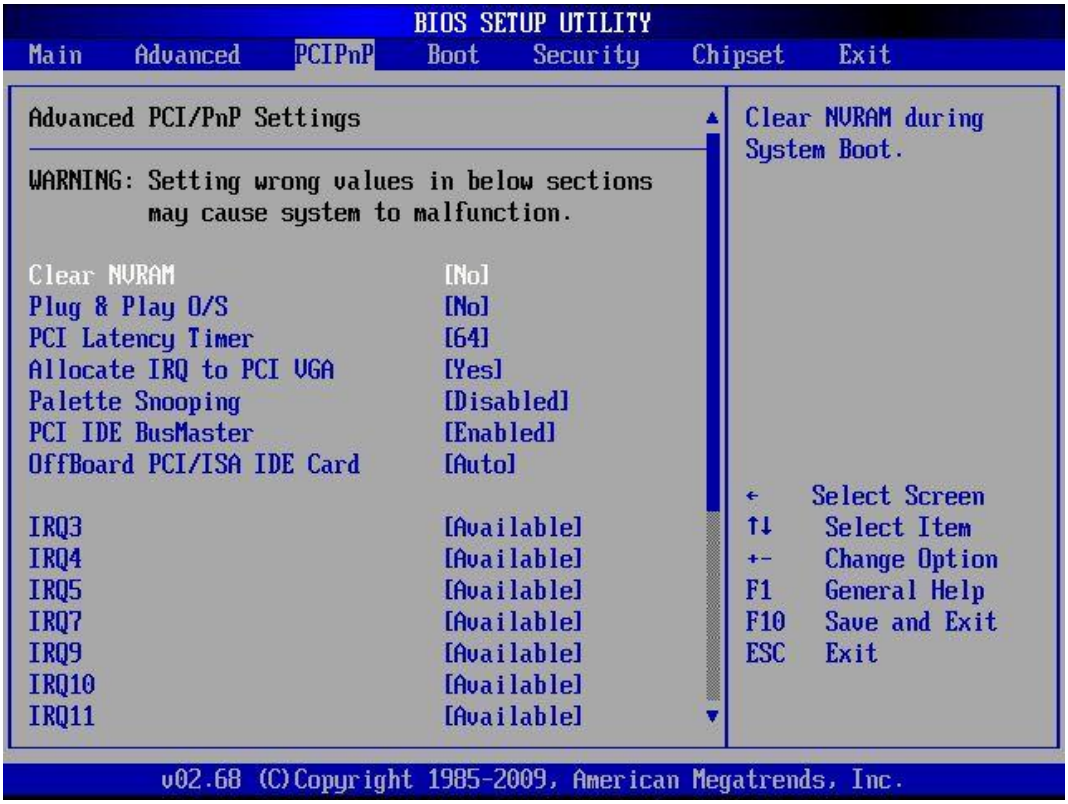
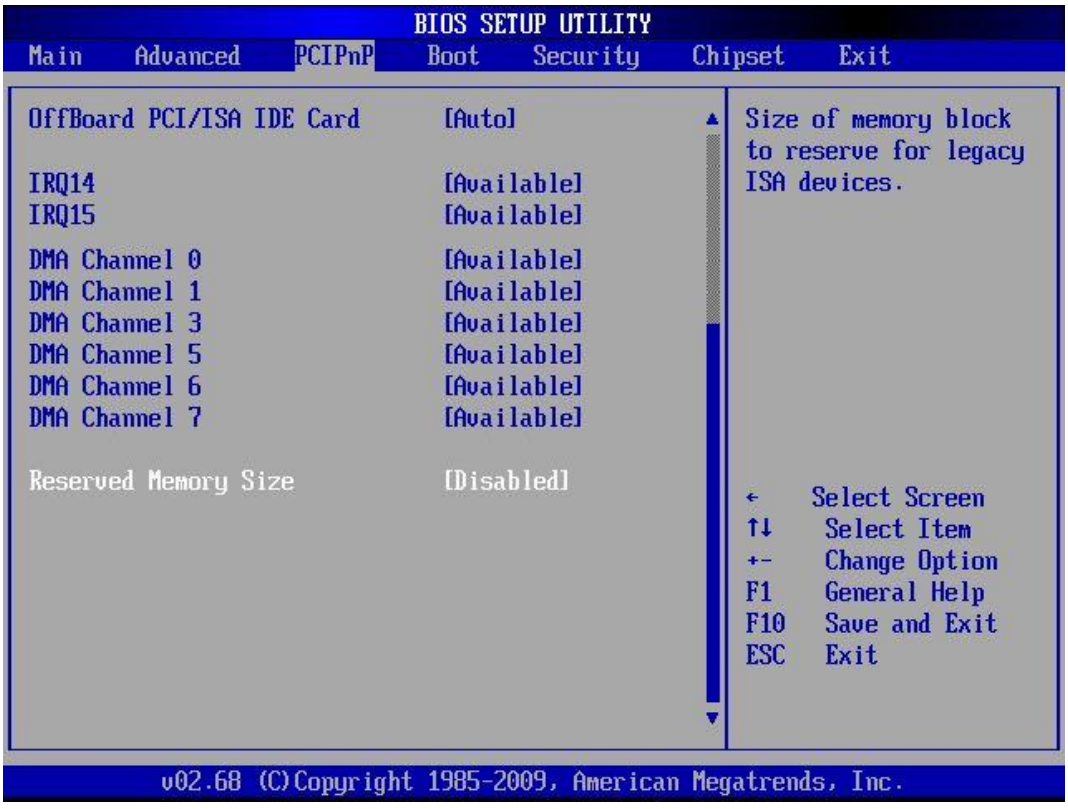
- **Legacy USB Support**
  Enables support for legacy USB. Auto option disables legacy support if no USB devices are connected.
- **USB 2.0 Controller Mode**
  This item allows you to select HiSpeed (480 Mbps) or FullSpeed (12 Mbps).
- **BIOS EHCI Hand-Off**
  This is a workaround for OSs without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.

4.4 PCI/PnP Setup

This section is used to configure settings for PCI/PnP devices.




BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
OffBoard PCI/ISA IDE Card [Auto]
IRQ14 [Available]
IRQ15 [Available]
DMA Channel 0 [Available]
DMA Channel 1 [Available]
DMA Channel 3 [Available]
DMA Channel 5 [Available]
DMA Channel 6 [Available]
DMA Channel 7 [Available]
Reserved Memory Size [Disabled]
Size of memory block to reserve for legacy ISA devices.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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4.4.1 Clear NVRAM

Set this value to force the BIOS to clear the Non-Volatile Random Access Memory (NVRAM). The Optimal and Fail-Safe default setting is No.

4.4.2 Plug & Play O/S

When set to No, BIOS configures all the devices in the system. When set to Yes and if you install a Plug and Play operating system, the operating system configures the Plug and Play devices not required for bootup.

4.4.3 PCI Latency Timer

Value in units of PCI clocks for PCI device latency timer register.

4.4.4 Allocate IRQ to PCI VGA

When set to Yes, will assign IRQ to PCI VGA card if card requests IRQ. When set to No will not assign IRQ to PCI VGA card even if card requests an IRQ.

4.4.5 Palette Snooping

This item is designed to solve problems caused by some non-standard VGA card.

4.4.6 PCI IDE BusMaster

When set to enabled, BIOS uses PCI busmastering for reading/writing to IDE drives.

4.4.7 OffBoard PCI/ISA IDE Card

Some PCI IDE cards may require this to be set to the PCI slot number that is holding the card. Set to Auto works for most PCI IDE cards.

4.4.8 IRQ3 / 4 / 5 / 7 / 9 / 10 / 11 / 14 / 15

This item allows you respectively assign an interrupt types for IRQ-3, 4, 5, 7, 9, 10, 11, 14, 15.

4.4.9 DMA Channel 0 / 1 / 3 / 5 / 6 / 7

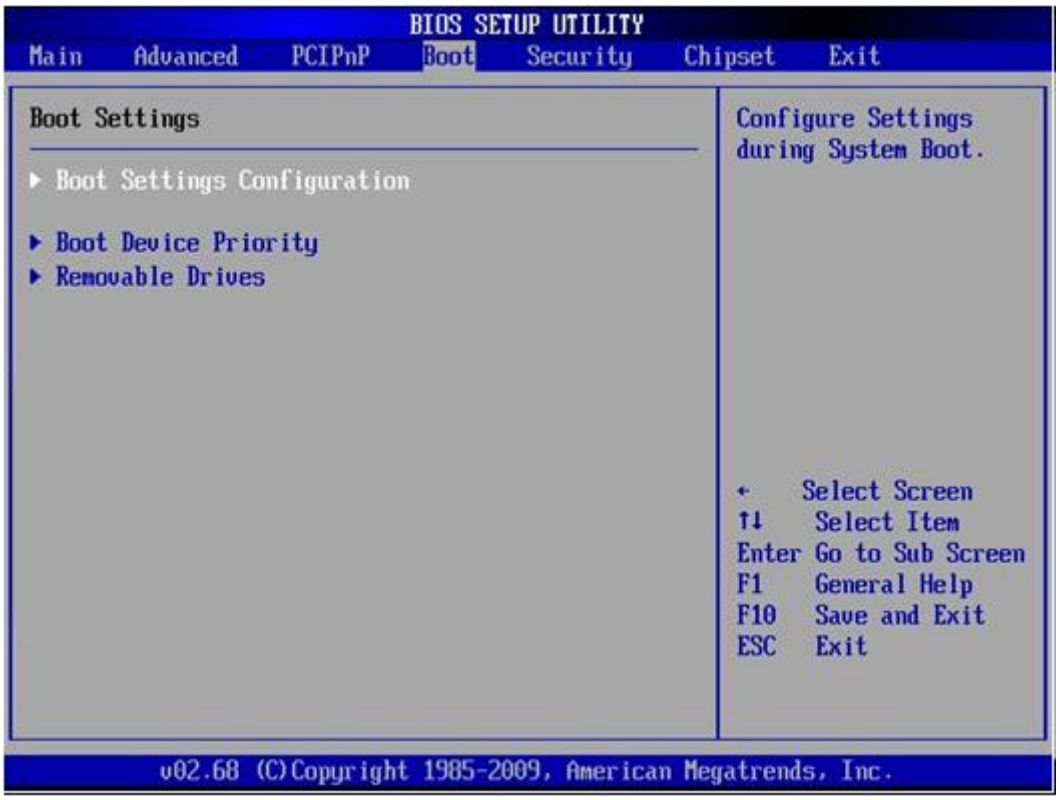
When set to Available, will specify DMA is available to be used by PCI/PnP devices.
When set to Reserved, will specified DMA is Reserved for use by legacy ISA devices.

4.4.10 Reserved Memory Size

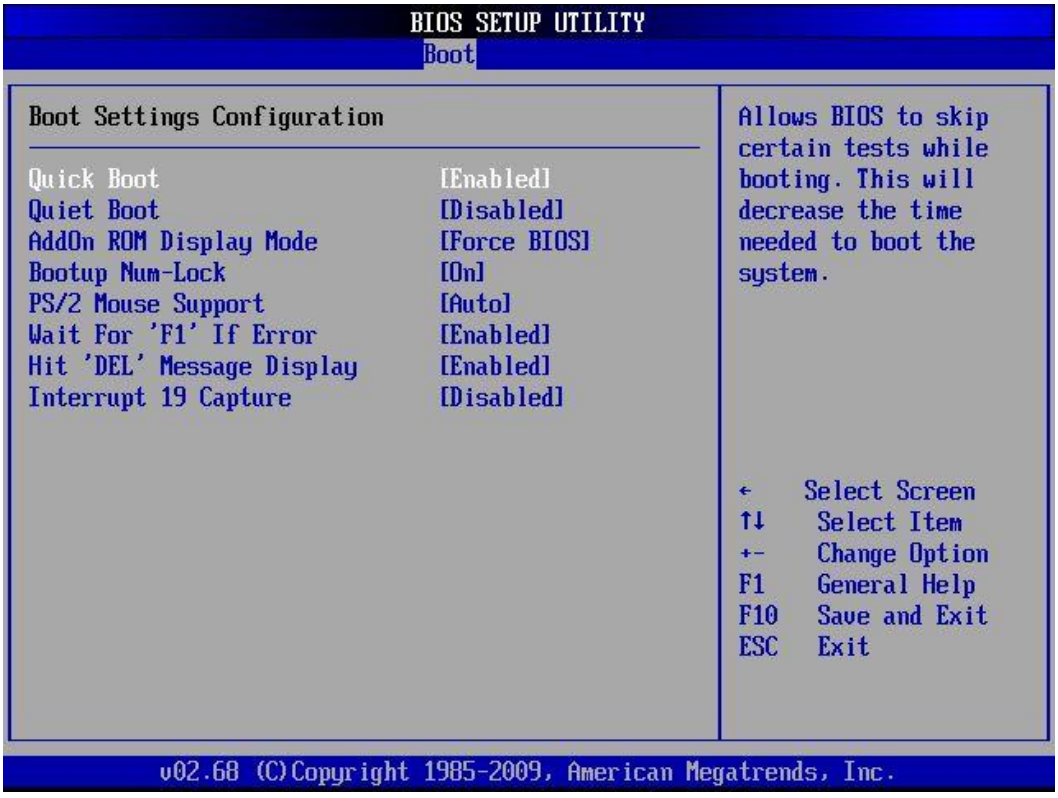
This item allows you to reserve a set amount of memory for legacy ISA devices.

4.5 Boot Setup

The Boot menu allows users to change boot options of the system. You can select any of the items in the left frame of the screen to go to the sub menus.



4.5.1 Boot Setting Configuration


BIOS SETUP UTILITY
Boot
Boot Settings Configuration
Quick Boot [Enabled]
Quiet Boot [Disabled]
AddOn ROM Display Mode [Force BIOS]
Bootup Num-Lock [On]
PS/2 Mouse Support [Auto]
Wait For 'F1' If Error [Enabled]
Hit 'DEL' Message Display [Enabled]
Interrupt 19 Capture [Disabled]
Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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■ **Quick Boot**
This item allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.

■ **Quiet Boot**
If this option is set to Disabled, the BIOS displays normal POST messages. If Enabled, an OEM Logo is shown instead of POST messages.

■ **AddOn ROM Display Mode**
Set display mode for option ROM.

■ **Bootup Num-Lock**
Select the Power-on state for Numlock.

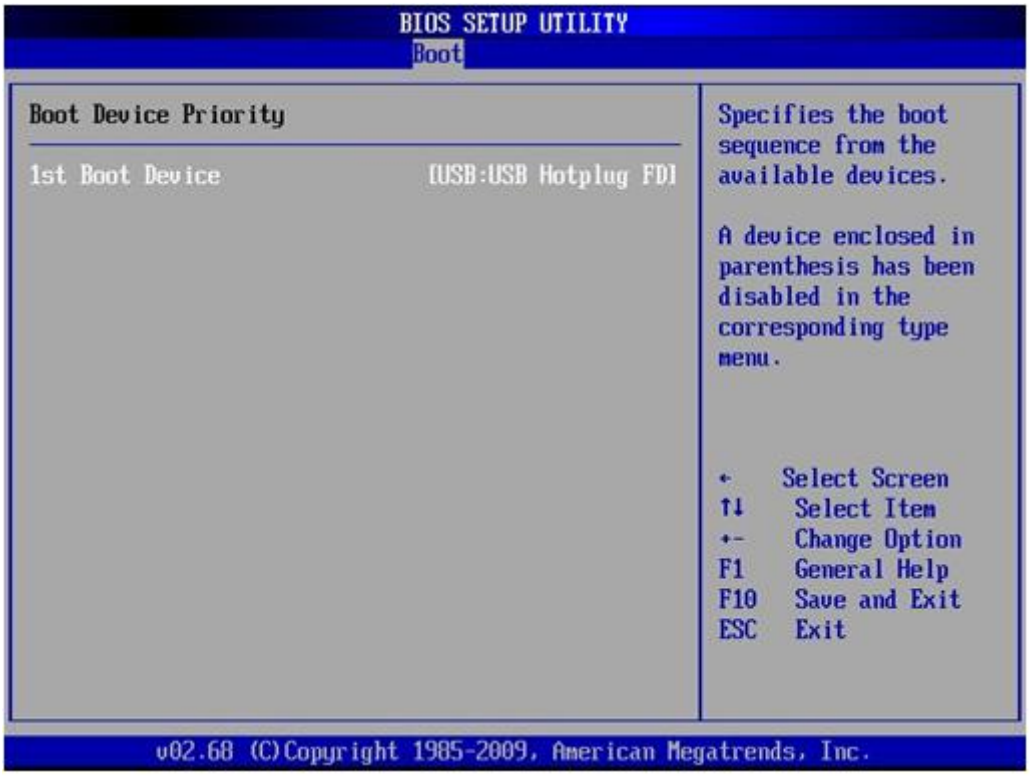
■ **PS/2 Mouse Support**
Select support for PS/2 Mouse.

■ **Wait For .F1. If Error**
Wait for the F1 key to be pressed if an error occurs.

■ **Hit .DEL. Message Display**
Displays .Press DEL to run Setup. in POST.

■ **Interrupt 19 Capture**
This item allows option ROMs to trap interrupt 19.

4.5.2 Boot Device Priority


BIOS SETUP UTILITY
Boot
Boot Device Priority
1st Boot Device
[USB:USB Hotplug FD]
Specifies the boot sequence from the available devices.
A device enclosed in parenthesis has been disabled in the corresponding type menu.
← Select Screen
↑↓ Select Item
+- Change Option
F1 General Help
F10 Save and Exit
ESC Exit
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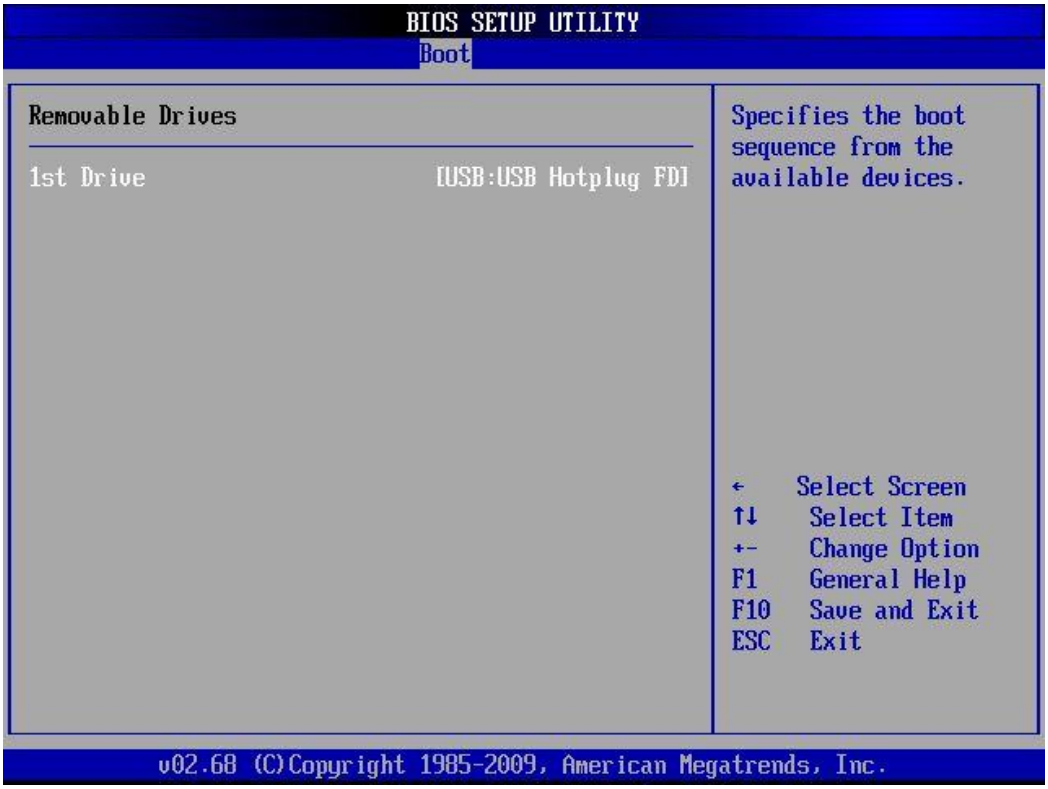
■ **1st Boot Device**
Selects the drive to boot. The BIOS will boot the operating system according to the sequence of the drive selected.

4.5.3 Removable Drives

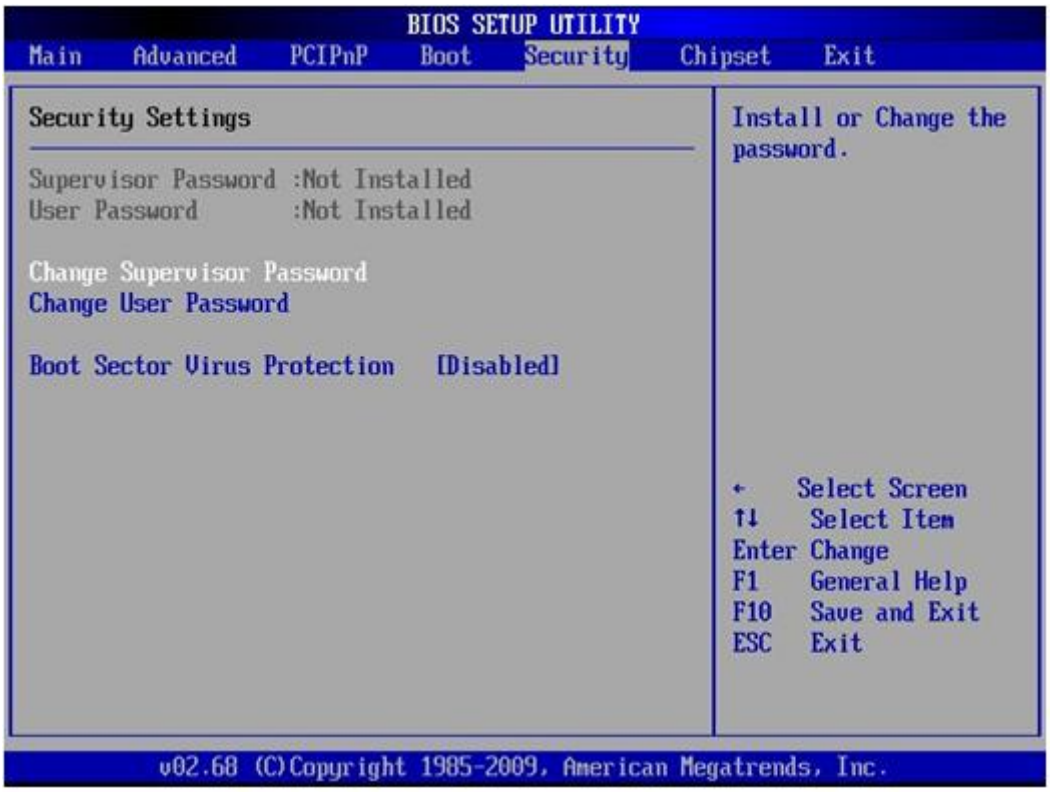


■ **1st Drive**

This section is used to select the boot priority sequence of the removable drives.

4.6 Security Setup

The Security menu allows users to change the security settings for the system.



4.6.1 Change Supervisor Password

Supervisor Password controls access to the BIOS Setup utility. These settings allow you to set or change the supervisor password.

4.6.2 Change User Password

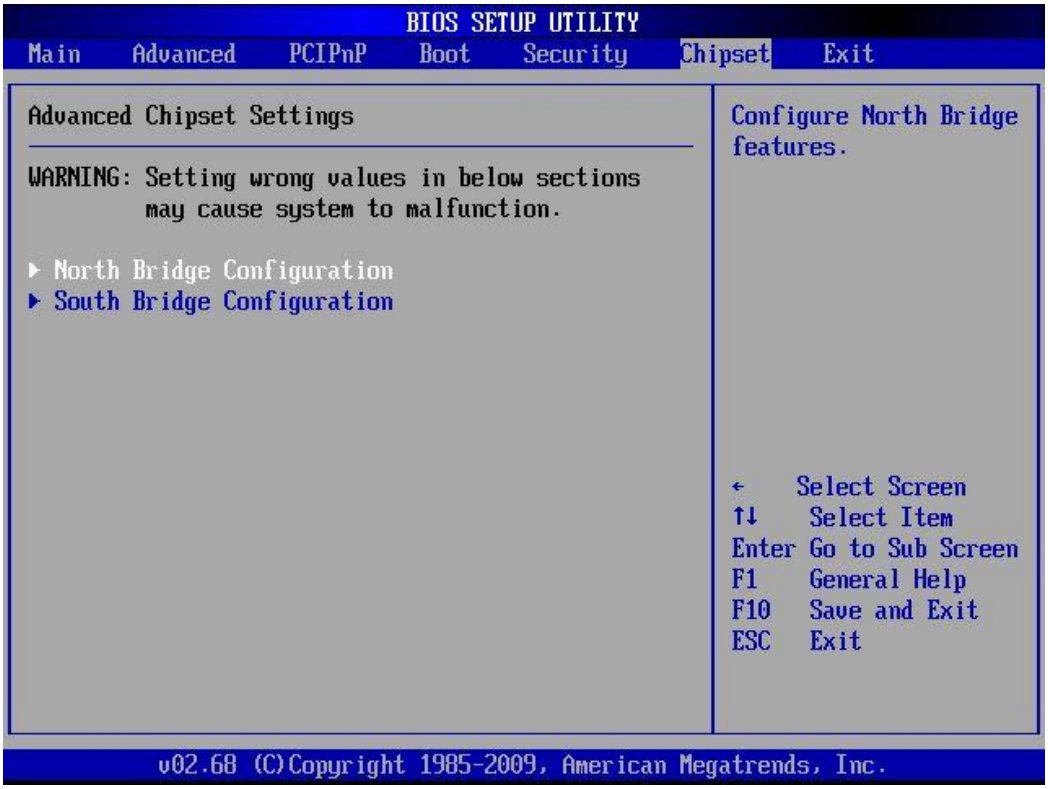
User Password controls access to the system at boot. These settings allow you to set or change the user password.

4.6.3 Boot Sector Virus Protection

The boot sector virus protection will warn if any program tries to write to the boot sector.

4.7 Chipset Setup

The Chipset menu allows users to change the advanced chipset settings. You can select any of the items in the left frame of the screen to go to the sub menus.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Advanced Chipset Settings
WARNING: Setting wrong values in below sections may cause system to malfunction.
North Bridge Configuration
South Bridge Configuration
Configure North Bridge features.
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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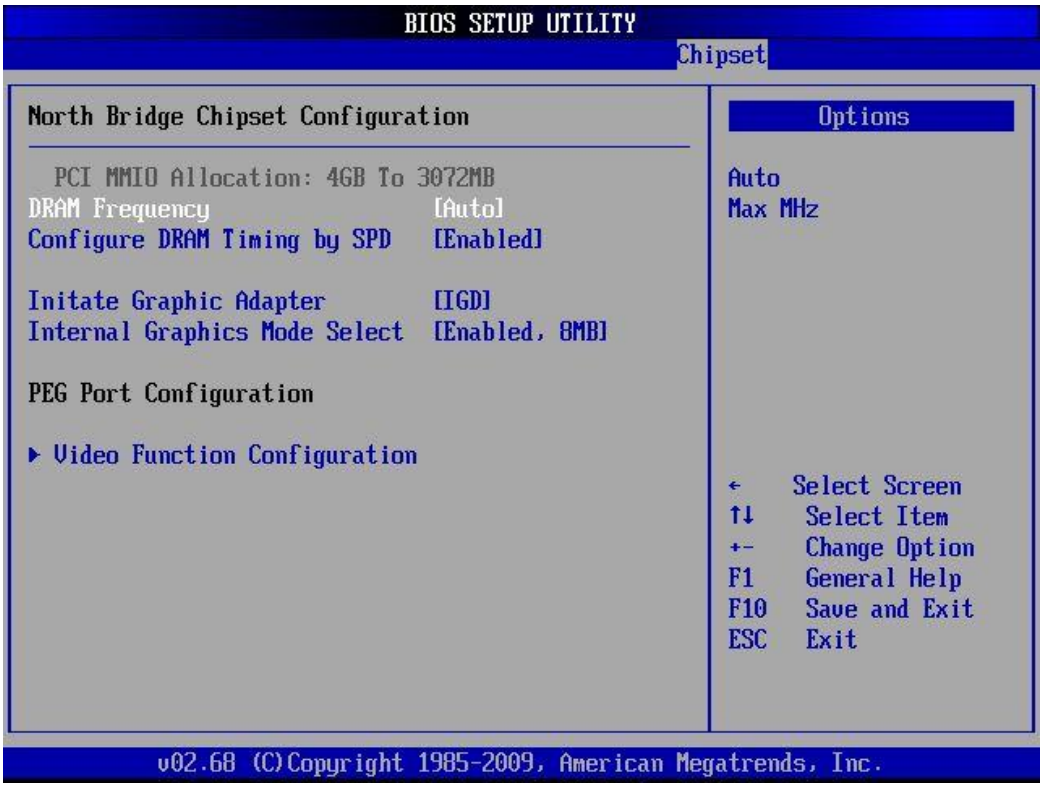
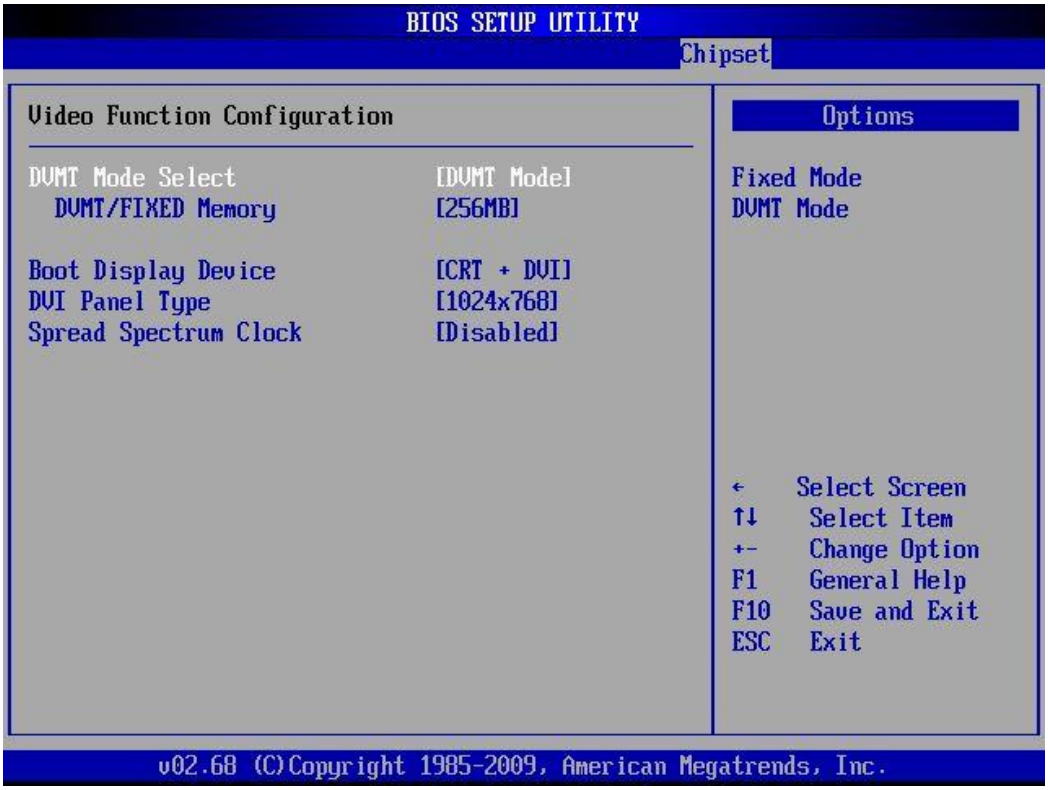
4.7.1 North Bridge Configuration

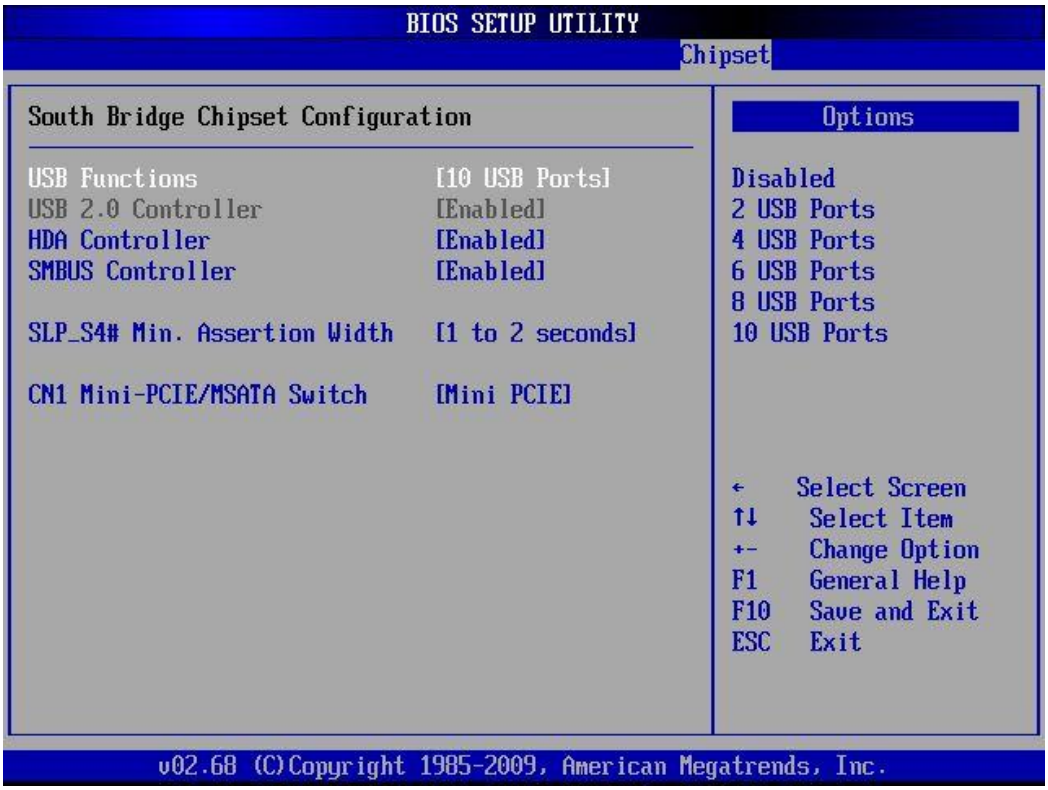


■ **DRAM Frequency**
This item allows you to manually change DRAM frequency.
■ **Configure DRAM Timing by SPD**
This item allows you to enable or disable detect by DRAM SPD.
■ **Initiate Graphic Adapter**
This item allows you to select which graphics controller to use as the primary boot device.
■ **Internal Graphics Mode Select**
Select the amount of system memory used by the Internal graphics device.
■ **Video Function Configuration**



☐ **DVMT Mode Select**
Displays the active system memory mode.
☐ **DVMT/FIXED Memory**
Specifies the amount of DVMT / FIXED system memory to allocate for video memory.
☐ **Boot Display Device**
Select boot display device at post stage.
☐ **DVI Flat Panel Type**
This item allows user to select DVI monitor resolution.
☐ **Spread Spectrum Clock**
This item allows you to enable or disable spread spectrum clock.

4.7.2 South Bridge Configuration



■ **USB Functions**
Enables or disables USB devices.

■ **USB 2.0 Controller**
Enables or disables the USB 2.0 controller.

■ **HDA Controller**
Enables or disables the HDA controller.

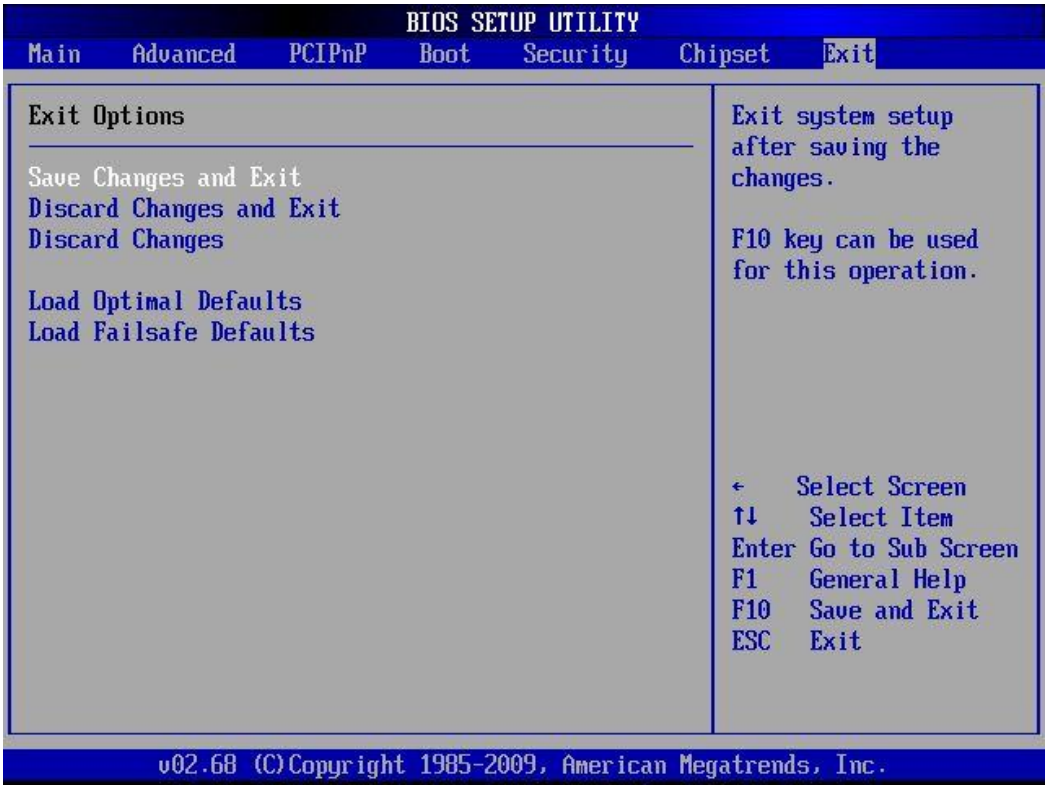
■ **SMBUS Controller**
Enables or disables the SMBUS controller.

■ **SLP_S4# Min. Assertion Width**
This item allows user to set a delay of a set number of seconds.

■ **CN1 Mini-PCIE/MSATA Switch**
This item allows user to select Mini-PCIE or MSATA interface.

4.8 Exit Setup

The Exit menu allows users to load the system configuration with optimal or failsafe default values.


BIOS SETUP UTILITY
Main Advanced PCIPnP Boot Security Chipset Exit
Exit Options
Save Changes and Exit
Discard Changes and Exit
Discard Changes
Load Optimal Defaults
Load Failsafe Defaults
Exit system setup after saving the changes.
F10 key can be used for this operation.
← Select Screen
↑↓ Select Item
Enter Go to Sub Screen
F1 General Help
F10 Save and Exit
ESC Exit
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4.8.1 Save Changes and Exit

Save changes to CMOS and exit the Setup Utility.

4.8.2 Discard Changes and Exit

Abandon all changes and exit the Setup Utility.

4.8.3 Discard Changes

Abandon all changes and continue with the Setup Utility.

4.8.4 Load Optimal Defaults

Use this menu to load the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard.

4.8.5 Load Failsafe Defaults

Use this menu to load the default values set by the BIOS vendor for stable system performance.

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